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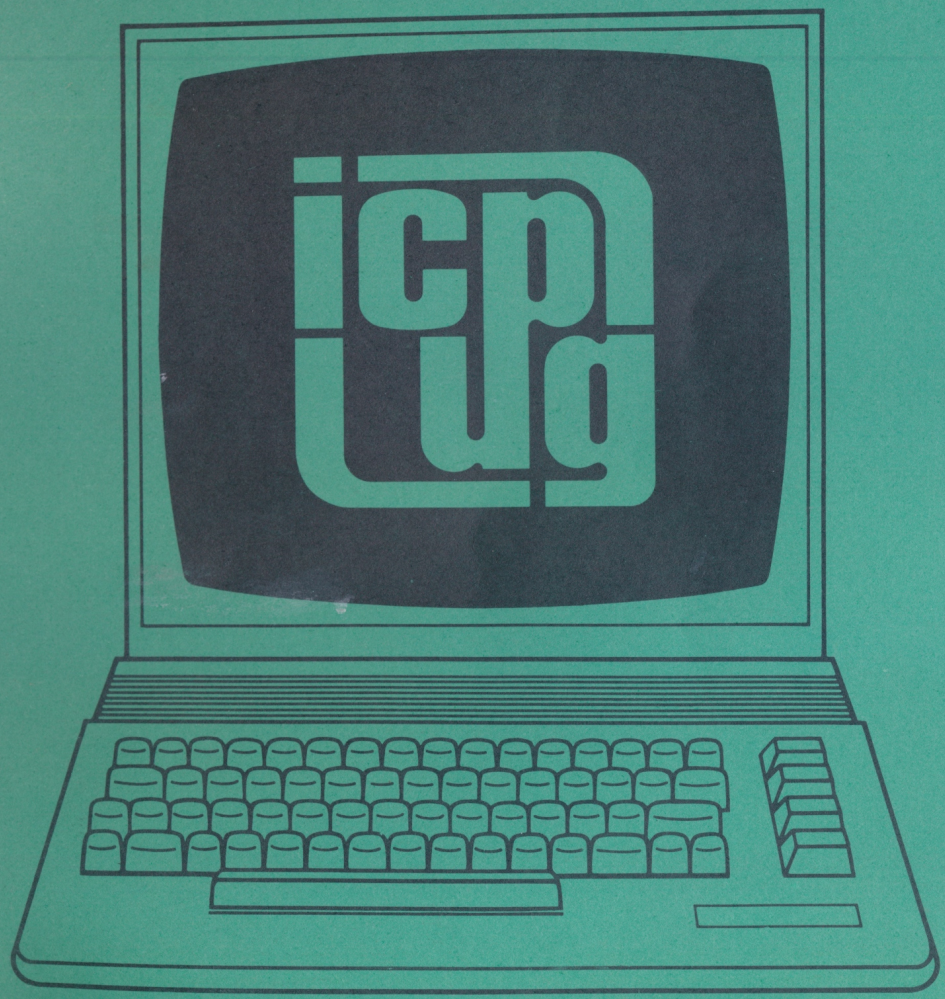

Europe's first independent magazine for CBM users

Volume 11 March/April 1989 Number 2

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icpug newsletter

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Editor's Notebook

I would like to give you all a pat on the back, but I dare not, just in case you get complacent. What am I on about? Timing. I was worried that my rantings of last issue would go unheeded and this issue would be short. However, the response has been terrific as you can see. In fact some material has had to be held over for the next issue.

Regrettably, every silver lining has its cloud, and among the large pile of letters congratulating my first issue was the letter from one person who didn't have a good word to say about anything. This person takes pains to point out that the volume of the Newsletter has decreased in recent months. He appreciates that the content of the Newsletter is dependent upon contributions (but hasn't contributed himself in two years) and tells us that if (implying that we are) we let our standards slip we will be on the rocky road to failure. He finishes by saying that we should be guarding against complacency.

This guy made me so angry, I had to edit this column three times before it was printable. People like him really make me sick. If you wish to criticise the newsletter, or even the club in general, at least be constructive. The Newsletter relies on contributions. If it's a little thin one issue, maybe its because YOU haven't contributed. So start your letter "I was noticing the Newsletter getting thinner, so here is my contribution ..." Please don't start spouting this complacency cr*p, because nobody will listen. Excuse my French.

Wearing my committee hat for a moment, it has come to our notice that there are some very early versions of Superbase Personal floating about within ICPUG. Naturally, neither ICPUG nor any software company can condone this. How can you tell if you have got one? Firstly, you didn't pay for it. Secondly, the front screen bears the words "FOR INTERNAL USE ONLY". If you have one of these, there are two things you can do. Firstly, destroy it, and secondly go out and buy a legitimate copy of whatever product. What happens if you don't do this? Firstly you will deprive me of my wages, so I shall starve and you won't get any more Newsletters. Secondly you lay your hard drives and floppies open to being completely and utterly ruined. No, Superbase does not have a virus, these pre-release copies just plain do not work. DON'T TRUST YOUR EQUIPMENT TO BROKEN SOFTWARE. Thirdly, you will destroy the reputations of both ICPUG and the software company. Nuff said?

There are a number of reports from Which Computer? this issue, and I am going to add to the melee. After spending a two days there, I saw a few items that caught my eye. First, and most remarkable was the 14" flat screen VGA monitor from Zenith. This monitor is so flat that you would swear it curved inwards! It also has an entirely non-reflective (well, to all practical purposes)

screen and an extremely fine dot pitch. I would surely give several major appendages for one (although not necessarily mine). The price? a mere £780 retail.

The other item of interest was on the Commodore stand. Here I discovered how Amiga 2000s bring the weather forecast to millions of TV viewers in the UK and Europe. The Weather Department Ltd provides 'complete weather presentations', including dynamic colour satellite sequences, 80 times per week for Central TV in the Midlands, and 400 times per week on SKY satellite TV.

The satellite sequences are captured direct from the satellite on the Amiga and processed. The forecast captions are also created on the Amiga using deluxe paint.

The final presentation is transmitted to the TV studios where they are played on another Amiga and genlocked live to air. The director can cue the images from the gallery through a remote keypad which attaches to the mouse port. The Weather Department Limited can be contacted on 021-233 4041.

Finally, I would like to comment on a few points that have been raised on the PC library. One or two people sent disks to me asking for material. Unless this was 3.5" media, the response was very slow. This was intentional. Why? because you were not following the rules. Disks are copied by copiers, not by me. Follow the rules and response will be speedy. At least one other person has claimed I never returned his disks. This is true, because I never received them. When you sent stuff to me did you check the address was correct? There are no less than THREE Cowley Roads in and around Oxford. Mine was not the first one considered by the Post Office if there was any ambiguity. My credit card company got it wrong...

Reorganisation of the library is nearing completion. There will be fewer disks, but more material, and more up to date material. Material is now no longer duplicated on more than one disk. Also the library will be optimised for the capacity of media being used. 1.2M disks will contain 1.2M of software, 720K will contain 720K and so on. Details of availability and who provides what in the next issue.

Chairman's Chatter

by John Bickerstaff

Spring is just around the corner and you may already be thinking about the Commodore Show at the Novotel. However, our next special event is the Annual General Meeting which will be held on saturday the 6th of May. With this issue of the Newsletter you will receive the Report and Accounts for the 1988 year. This report states our economic health and indicates how we are expanding some of the ICPUG supporting functions. It also mentions some of the individuals involved with this expansion. The Agenda for the meeting is printed on the back of the report.

The Cost of your Call

Many of you will have seen advertisements that invite you to call a free-phone number or to dial 0800 (followed by a string of numbers) which will be a free of charge call. Now, this is true but... along came Cellnet and Vodaphone which were meant to give you complete mobility - or is it your phone that is completely mobile whilst you are chained to it?

Using a 'cellnet' type of mobile telephone is certainly a great thing for many business people ensuring that they can be available to take calls (and orders) twenty four hours a day. Now you may or may not know that it is not cheap for your to make your call to the holder of a 'cell net' type of telephone. Do please remember that calling an 0860 or 0836 prefix number will cost you 33p per minute at peak (business) times or 22p per minute at other times.

CIX on line

A few issues ago you were advised that ICPUG would soon have a conference on CIX. Well the conference area has now been set up and is running under the title of ICPUG for any person accessing the system or ICPUGMEM for ICPUG members who have registered with the moderator, Brian Fowler. Mail him on CIX (his nickname is bfowler) advising him of your membership number and requesting that he allows you access to ICPUGMEM.

CIX is a scrolling screen bulletin board system which costs a minimum of £5.75 per month, including five hours of connect time. You need to add the cost of your telephone calls to this amount. There is a joining fee of about £16.00 or you can log on to find out a little about the system before joining - which you can do by using an acceptable credit card. You will also need a

modem, a computer and a telephone line.

WHICH? computer show

The 1989 WHICH? computer show is over for another year. Commodore was there with yet another new stand. This time the colour theme was white, do you think they were trying to whiten the effects of the black stands of two previous shows? There were several items of particular interest on the stand. However, the neatest item we saw was the A590 which combined a hard disk with 2MB of RAM in a small and attractive casing which fitted onto the left hand end of an A500 Amiga. They deserve a design award for the appearance of this unit. Well sir, it SHOULD be available in two or three months time and is quite reasonably priced.. we think they will put a price of £699 plus VAT on it initially.

Commodore News

by Janet Bickerstaff

Commodore had a large stand, complete with demonstration theatre, at the Which Computer? Show at the NEC at Birmingham. This was a new stand, quite different from the black pyramid. It was much lighter and brighter and there was even a hospitality suite on the top deck, from which the priviledged could view the whole of Hall 5.

The Amiga 2500 UX was on display. The multi-tasking, multi-processing capabilities of the Amiga have been enhanced with an operating environment based on Unix System V, called Amix.

It is not only a Unix workstation. It is an Amiga with AmigaDOS on the hard drive (which can be partitioned) as well as Amix. The user has the option of which environment to work in. The 68020 CPU can be accessed from either environment.

Beta versions of the Amix system are with developers now.

Also on display on the stand was the A590. This is a hard drive for the A500 with 2Mb RAM. It should be available in two/three months time.

The full range of Commodore machines was on the stand. PCs were very much in evidence and Commodore is at the start of a strong press advertising campaign. Prices have been reduced. The PC10 III - an IBM XT compatible - has been bundled with an MPS1230 dot matrix printer at a very attractive price.

Computer shows

April	16 - 18	European Computer Trade Show - Business Design Centre, Islington, London
May	9 - 11	PC User Show - Olympia, London
June	2 - 4	Commodore Show - Novotel, London
Sept.	27 - Oct.1	Personal Computer Show, Earl's Court, London.
Oct.	2 - 4	International DTP Show, London Arena, Docklands, London.
Nov.	17 - 19	Commodore Show - Novotel, London

LAN COMPUTER SYSTEMS

MONITORS

Vision 4200 Monitor (Mono) ..... £189.00 + VAT
Commodore 1084S Monitor (Stereo) ..... £229.00 + VAT
Phillips 8833 Monitor (Stereo) ..... £209.00 + VAT

AMIGA A500 COMPUTERS

A500 + Dust Cover + Mouse Mat ..... £313.00 + VAT
A500 as above with £100 worth of software or T.V. modulator and £75 worth of software ..... £357.00 + VAT
A501 RAM expansion ..... £112.00 + VAT
EIGHT EXCITING NEW AMIGA PACKS AVAILABLE .....
..... PHONE FOR DETAILS

AMIGA 2000 COMPUTERS

A2000B Computer ..... £849.00 + VAT
XT Bridgeboard **SPECIAL OFFER** ..... £199.00 + VAT
A2058 2MB RAM Board (Ex 8MB) ..... Phone
A2092 20MB Hard Disk for PC including controller card. £150.00 + VAT

PRINTERS

Okimate 20 ..... £115.00 + VAT
Star LC10 serial or parallel interface ..... £179.00 + VAT
Star LC10 Colour serial or parallel interface ..... £199.00 + VAT
Star LC24–10 parallel interface ..... £289.00 + VAT

DRIVES

Cumana 3½" External Drive ..... £78.00 + VAT
Cumana 3½" with on/off Switch ..... £82.00 + VAT

LANSOFT CLUB

Get even more money off your software as a Lansoft member. The cost to an ICPUG member for membership is just £10.00 a year. For example a £24.95 game can cost as little as £5.95. Phone for a membership form or come along and see us.

We cover a wide range of Commodore equipment so give us a call for any prices or help you may need.

Please note prices are current at the time of going to press and subject to availability.

1063 High Road, Chadwell Heath, Romford, Essex RM6 4AU Telephone: 01-597 8851

Hot and bothered - the 1541

by Zak Beck

One night I sat at my 64, and decided to load up a program I hadn't touched for ages. I carefully pushed the disk in, typed the appropriate commands, and after much whirring and woodpeckering, guess what ? Nothing happened. I tried a backup, with the same results.

Another evening, after everything had been turned off for some time, I decided to try again. This time, the same program loaded OK ! After some time the same night, nothing happened when I tried to reload the program. I ran my disk head alignment program - 1541 Physical Exam, from Evesham Micros. (This comes with a very comprehensive manual and I would recommend it to anyone with a 1541!). I found that the drive was completely out of alignment (according to the program), so I began the laborious task of realigning the drive. Having taken the mechanism out, I re-ran the program, and it now said the disk alignment was completely OK. I traced this to the fact that the large power transformer in the drive was heating up the drive mechanism. In the mechanism is a metal belt, which will expand as it gets hotter. This belt and other metal parts affect the alignment of the drive.

And so from then on, I have been using the drive mechanism - the dark brown part at the front of the drive - separate from the main drive and circuit board. I extended the cables with a length of ribbon cable. IF YOU HAVE SIMILAR PROBLEMS, HERE IS WHAT I DID AND WHAT YOU MAY LIKE TO TRY :-

1. Disconnect the drive from the power and from the computer.

2. Lay the drive carefully on its top and unscrew the 4 screws which hold the case together.

3. Now turn the drive carefully right way up;

4. Along the left and right hand sides of the case you will find screws holding the metal chassis to the plastic case. Unscrew these screws.

5. Lift out the chassis. At the front you should be able to see that the brown - fronted drive mechanism is separate and is held by four screws. (The drive mech is, in fact a fairly solid block of metal). Unscrew these screws. If possible, try to lift the drive up, then slide it forward. If you succeed, proceed to step 7.

6. Oh, so you didn't make it! You may have to unscrew the circuit board and unplug some of the wires. But make sure you know where they came from - you could label them. Now try lifting out the drive mech again, and replace the circuit board (screw it back up) and plug all the wires back in.

7. Good. You should find that there is a bundle of wires between the circuit board and the drive mechanism. The plugs for these wires are on the left side of the board if you have trouble locating them. These will, of course, need lengthening. The shorter length of cable, the better the signals will travel between circuit and drive. Do them slowly and carefully. I used ribbon cable to lengthen them, and veroboard at each end. Make sure each wire really is connected to its counterpart at the other end - a friend to check may be a good idea - I did mine one-by-one. There is also a black screened cable. Both the screen and the white, inner cable, should be connected. It's also a good idea to insulate your connections with insulation tape. If you use veroboard, it can be screwed to the chassis at a spare hole, ensuring that no connected tracks are touching the metal chassis!

8. Having checked your work, you should by now have a ribbon cable to your drive. You can now screw the chassis back in if you haven't already done so, and you can put the lid back on too, having found a place out of which to trail your ribbon cable - I trailed mine out of the large hole left by the removal of the drive mechanism. The serial and power connections go in the same places as before.

9. The drive mechanism could be boxed. Until you do, it's a good idea to keep the dust off it using, for example, a cut down cereal box.

Notes on usage

You may find that having completed this modification the drive is worse in operation than ever before ! However, there is a remedy you will be pleased to know.

Get a disk on which you know there is a program or two, and insert it into the offending drive. Move the drive as far away from the monitor/TV as is possible - the control unit may need to move as well. Of special concern is to keep the cable away from the display - printers don't seem to affect it. Try to catalogue your disk. If it works, well done! Modification complete. If not, move it to another area. Usually a distance of about 2 feet is quite OK.

The reason for this is the screened cable I mentioned earlier. Along the ribbon cable, it is not screened, so data which travels on this line gets corrupted by radio emissions from the display, rather like the datasette does. You could use screened cable for this one connection, but if you like a tidy system with as few wires as possible, (like me !) just keep the cable as far away as possible. Also, make sure this cable has plenty of free play at the drive end - it is connected to the head, which moves around a lot !

With this modification, not only will your drive operate smoother, it will also look much smaller and compact than the original drive !

[Disclaimer: Please note that this procedure will invalidate your warranty and possibly also your (or your children's) health. ICPUG accepts no liability for damage or injury caused by attempting this modification.]

Multitasking on The Amiga

by Leo L. Schwab

This tutorial will describe multitasking on the Exec level, not the DOS level. As a personal preference, I prefer to avoid the DOS whenever I can and go straight to the Exec. This does not cause undue difficulty, and in fact reduces overhead and headaches.

This tutorial will deal mostly on the practical level, and will assume you know the basic concepts behind a multitasking environment. Thus, this tutorial will use a cookbook approach to help you through getting your multiple tasks running and talking to each other.

So get out your favourite C compiler and follow me...

Introduction

The first thing you should do when approacing the Amiga Exec is to forget everything you know about any other kind of multitasking operating system you're familiar with. Put it out of your mind. Ignore it. Particularly UNIX.

I say this because trying to use your knowledge of your favourite multitasking operating system is not going to help you much when you start dealing with the Amiga Exec. The Exec is far and away vastly different from just about every other multitasking environment, with the possible exception of XINU (I mention XINU because there's a good book out on it, and many of the concepts in that book can be applied to the Amiga Exec).

The Exec is, in my view, a bare-bones multitasking environment. There is just enough in the Exec to do everything you need, although it may not do everything you want. It won't automagically deallocate resources you've opened, and it's handling of runaway programs is not what many programmers would like.

By contrast, however, the Exec is small and compact. It's written in extremely tight machine code. Because it's small and quick, and doesn't try to do things behind your back, it is a real-time operating system, and can respond to interrupts and signals rather efficiently.

So, in exchange for having to do everything yourself, you get a very efficient multitasking executive.

Getting Started

A task, in the Exec's eyes, consists of two parts: A program segment residing

somewhere in memory, and a task control block which is part of a linked list of tasks managed by the Exec.

The program segment can be anything and anywhere. One particular way of getting a program segment might be to declare a function in C:

```
subtask ()
{
        ...
}
```

The task control block is an object that describes your task to the Exec. In particular, where your stack is in memory, where the stack pointer is, where the program counter should be, what signals your task has received, which signals it's waiting on, etc. Every task must have a task control block.

In addition, all tasks require a stack. Even if you're not doing any subroutine calls or have any local variables, you are still required to have a stack so the Exec can save your registers and return address if it should perform a context switch. The absolute minimum size your stack can be is 70 bytes (q.v. RKM vol 1, p. 1-17,1-18). A nice round number for a stack size is 1K. Personally, I prefer to specify a stack of 2K just to be sure I have enough space for my variables and any subroutines I may call. The stack can be allocated out of the free memory pool using AllocMem(). It is recommended (but not necessary) that you do not declare the memory public i.e. don't specify the MEMF_PUBLIC flag when calling AllocMem().

Calling A Task Into Existence

The Exec support library provides a rather nice function for the purpose of creating tasks, called, oddly enough CreateTask().

CreateTask() performs only the most basic of task initialisation steps. It first allocates a chunk of memory for both the stack and task control block. It then initializes the tc_SP[Upper,Lower,Reg] fields in the structure, and the tc Node.ln_[Pri,Type,Name] entries in the node structure. Finally, it calls AddTask() to add your task to the system, and returns you a pointer to the task control block. If anything goes wrong during this Process, it returns a null, and doesn't allocate anything.

The calling format for CreateTask() is as follows:

```
struct Task *CreateTask (name, pri, initPC, stacksize)
char *name;
UBYTE pri;
APTR initPC;
ULONG stacksize;
```


name is a pointer to a string that is the name of your task. This is used if another task wants to find your task.

pri is your task's priority. This is a signed byte from -128 to +127. 0 is the canonical priority for new tasks.

initPC is the starting value for your program counter. Generally, this would be a pointer to a function, or some such thing.

stacksize is how big a chunk of memory you want allocated for your stack and task control block combined. CreateTask() allocates (stacksize) bytes of memory, then uses the first (sizeof (struct Task)) bytes for the task control block, and the rest is used for the actual stack. This is important to remember if you want a specific stack size.

The source code to CreateTask() can be found in the RKM vol. 2 a few pages past page E-78, in Appendix F.

A typical call to CreateTask might look like this:

```
struct Task *tsk;
extern void function();
if (!(tsk = CreateTask (Foo, 0, function, 2048)))
        printf (Couldn't create task'n);
```

Note that CreateTask does only the basic initialization of the task control block. If you are doing anything special, like exception processing, or interrupts, you can't use CreateTask; you'll have to cook up your own. The source code in the RKM provides a good template for writing your own custom task creator should you need one.

Getting Rid Of Tasks

If you spawn a subtask, you'll probably want to kill it off eventually. This is a bit tricky, but not too terrible.

Firstly, if your subtask allocated any resources, it must be certain to close them before you try to remove it. Remember, the exec does not perform resource management (at least not to the same level as in other operating systems); you have to free up everything yourself. This could probably be accomplished by sending your subtask a message asking it to kill itself. Once it gets this, it goes about closing all the stuff it may have opened before exiting.

If you use CreateTask(), you can use the complementary function DeleteTask() to get rid of a task you've spawned. DeleteTask() performs a RemTask() on the task in question, then frees up the memory it allocated earlier for the stack and task control block. A typical call to DeleteTask() might look like this:

```
struct Task *tsk;
DeleteTask (tsk);
```

tsk is the pointer to the task control block you got when you called CreateTask().

Now pay attention, because this next bit is important. If you intend to use DeleteTask() on a task to get rid of it, YOU MUST NEVER LET THAT TASK EXIT ON ITS OWN.

For example, if you have declared a function to be treated as a task, you must NEVER let the function return.

The reason for this is because of the action taken by the exec when a task exhausts its stack (that is, has exited on its own). Unless you've specified a special clean-up function when you called AddTask() (which you can't do with CreateTask()), the default action taken by the exec is to remove the task from the system task list, by calling RemTask().

DeleteTask() also calls RemTask(). Calling RemTask() on an already removed task is deadly. If you try and do this, the system may or may not crash. If it does crash, you may or may not get Guru Meditation. If you do get Guru Meditation, it will probably be for something completely unrelated, most likely a memory problem. If, on the other hand, the system doesn't crash, it may crash later when you try to start a different program. RemTask()ing removed tasks is a sure way to make your life miserable.

There is, however, nothing wrong with calling RemTask() on a task that is currently active. If you get the CPU, you can call RemTask() on any task in the system, and it will stop running and never be called again. Once you've RemTask()ed it, it's up to you to deallocate its stack and resources.

Since it's a good idea to let tasks deallocate their own resources (except their stack, that's up to the task doing the RemTask()ing), a typical pseudo-code sequence might look like this:

```
if (RECEIVED_KILL_MESSAGE)
{
        deallocate_resources ();
        return;
}
```


But we've already said that we can't let the task exit on it's own. So the obvious approach would be to do this:

```
if (RECEIVED_KILL_MESSAGE)
{
        deallocate_resources ();
        while (1)
                ;
}
```

This is also deadly. This creates a condition known as busy-waiting, and it's something to be avoided on the Amiga. Suppose a low-priority task wanted to kill off a high-priority task by sending it a message. If the high-priority task entered the busy-waiting loop outlined above, the low-priority task would never get the CPU back (Remember, exec context switching is not the same as UNIX. Whoever has the highest priority is the task currently running, regardless of how big a CPU hog it is). Somehow, we've got to get the task to enter a wait state of some kind. This is the way I like to do it:

```
if (RECEIVED_KILL_MESSAGE)
{
        deallocate_resources ();
        Wait (0);       /* Wait for Godot  :-) */
}
```

When you call Wait(), you specify a mask which is the logical OR of the signal bits you want to wake up on. By specifying a mask of zero, no signal condition will satisfy the mask. So the task goes to sleep and never wakes up again. But the task is still in the system task list. So at this point it is safe to call DeleteTask().

Message Passing

You might think message passing is a concept separate from multitasking. But multitasking and message passing are so closely intertwined in the Amiga exec that it would be incomplete to discuss one and not the other. As was discussed above, message passing is an effective way to tell a task to go away. So it seems appropriate to discuss it.

To do message passing, you need two things: A message port, and a message.

A message is simply a chunk of memory with data in it. The first part of the chunk is a node structure. This is used to link messages in a FIFO queue. The rest of the memory generally contains a pointer to the reply port, and the size of the message.

A message port is a list header that the exec links messages on to. The message port also contains other information, such as which task it belongs to, which signal bit to assert when a new message arrives, and some flags.

The structure definition for messages and message ports can be found in the RKM vol. 2 p. D-27.

Making Message Ports

The exec support library once again provides us with a convenient port creation function, called CreatePort().

CreatePort() first allocates a signal bit (using AllocSignal()), then allocates memory for the port itself. It then initialises the node structure, and the mp [Flags,SigBit,SigTask] fields. Finally, depending on whether or not you gave a name to the port, it either calls AddPort() (if you gave it a name), or simply calls NewList() for the message list structure (if you didn't give it a name). The reason for this dual action is in case you want to create a truly private message port. If you don't call AddPort(), other tasks will not be able to find your port by calling FindPort(). This is useful if you're sure other parts of the system will confuse your port with someone else's, or you simply don't want to receive messages from other tasks that may try to interrogate you (junk mail?).

The calling convention for CreatePort() is as follows:

```
struct MsgPort *CreatePort (name, pri);
char *name;
BYTE pri;
```

name is a pointer to a null-terminated string that is the name of your port. This is so that other tasks can use FindPort() to get a pointer to your port.
pri is a priority. I asked one of the Amiga people what use priority on a message port was. He explained that, since exec keeps everything in lists sorted according to priority, why not ports, too? This does have a marginally practical value. Since ports are sorted according to priority, when you call FindPort() on a port that has a high priority, it will still find the port, but it will find it quicker (since it's closer to the head of the list). As a rule, I suggest assigning ports the same priority as the task owning it.

Making Messages

All you need to make a message is a chunk of memory, so go get one (I'll wait....).

Got it? Now put a message structure at the front of the block you allocated. After that, put anything you need. A typical way of creating a message might be like this:

```
struct InformationPacket
{
        struct Message message;
        << insert relevant data declarations here >>
} pack;
```

Remember, a message can contain any kind of data you like. The one thing Exec expects to see is a message structure at the front. It must be an instance of a message, not a pointer to one. Beyond that requirement, Exec doesn't care.

One field of particular importance in the message structure is the mn ReplyPort, which will be discussed later.

As an illustration, take a look at the IORequest structures (RKM vol. 2 p. D-23). See what the first thing is in each of them? A message structure.

Sending Messages

In order to send a message, you must have a valid pointer to a message port, and a pointer to a message. When you have these, you pass them to the exec function PutMsg(). The calling convention is as follows:

```
PutMsg (port, msg);
struct MsgPort *port;
struct Message *msg;
```

port is a pointer to a message port that was obtained either by calling CreatePort(), or (more likely) by calling FindPort().
msg is a pointer to a message you've constructed, as outlined above.

Now pay attention, because this is another important bit. PutMsg() does not copy the message you're passing, but simply assigns the right to use the memory to the task owning the port you're sending the message to.

Let me rephrase that. PutMsg() does not make a copy of your message and

pass the copy to the port you're sending to. It gives the original message to the port.

Let's say you've allocated a block of RAM and are using it as a message. Then you call PutMsg(), passing a pointer to your block of RAM. You now no longer own that block of RAM; you have passed ownership (and therefore the right to use and modify the RAM) to the port you sent it to.

This means that, once you've passed ownership to the receiving task, you are NOT allowed to modify the message. If you REALLY know what you're doing, you can still access the contents of the message, but this can get you into trouble, as will be illustrated later.

Receiving Messages

To receive a message, you must have a properly initialised message port (generally made with CreatePort()). If you have properly initialised the mp [SigTask,SigBit] fields of the message port structure (CreatePort() does this for you), you will receive a signal when a message arrives at your port.

There are several ways to see if a message has arrived at your port. The most basic of these is the exec function GetMsg(). It works like this:

```
msg = GetMsg (port);
struct Message *msg;
struct MsgPort *port;
```

msg is a pointer to a block of RAM being used as a message. The task receiving the message should know how the RAM is structured so it can read the data properly. If a message is waiting, GetMsg() returns a pointer to it and removes the message from the port. If there are no messages on your port, GetMsg() returns a null.

port is a pointer to your message port that you are expecting messages to arrive on.

If you want your task to wait for a message to arrive before you do anything else, you might try to do it like this:

```
while (!(msg = GetMsg (port)))
    ;
```

This is the very deadly busy-waiting loop again, and you should avoid it like the plague. The proper way to wait for a message is like this:

```
msg = WaitPort (port);
GetMsg (port);
```


WaitPort() first checks to see if you have any messages, and if you don't, goes to sleep until one arrives. Note that, although WaitPort() does return a pointer to a message, it does not remove it from the port. You should always follow WaitPort() with a call to GetMsg() to dequeue the message.

Another way to wait for messages is to use Exec's general-purpose Wait() function. It's used like this (when waiting for messages):

```
Wait (1 << port -> mp_SigBit);
msg = GetMsg (port);
```

Note that Wait() does not buffer i.e. if two messages arrive at your port, Wait() will not report both of them. If you're using Wait() to wait for messages, the proper way to make sure you get all of them is like this:

```
Wait (1 << port -> mp_SigBit);
while (msg = GetMsg (port))
{
        << relevant message handling here >>
}
```

It may look like busy-waiting, but it isn't. The while-loop continues to execute until all the messages on your port have been received and dequeued. Once you've gotten them all, the loop exits and you're free to check on other things.

When you have the message, you are free to access and modify the message as much as you like. After all, it's now your RAM.

After you are through using a message, it is a good idea to reply to it. Tasks that send you messages often wait for you to reply to them so they can get on with their work. This is done with the exec function ReplyMsg(), which works like this:

```
ReplyMsg (msg);
struct Message *msg;
```

msg is a pointer to a message that arrived at your port.

Note that the message's mn_ReplyPort field must be valid for ReplyMsg() to work properly. Once you have replied to a message, you are no longer allowed to use the data in the message, since you have returned ownership to the task that sent you the message.

Note also that, when you reply to a message, it is exactly as if you said:

```
PutMsg (msg -> mn_ReplyPort, msg);
```

This means that the task receiving the reply will receive it as though it were an ordinary message. The receiving task should know what to do with replies to messages. It is not a good idea to reply to a reply. This is a typical way of sending a message and waiting for a reply:

```
PutMsg (sendport, msg);
WaitPort (replyport);
GetMsg (replyport);     /*  We don't reply to replies, we just
                            get them  */
```

Traps To Avoid

One trap that is easy to fall into is failing to remember that, once you reply a message, you can no longer rely on the information in the message. Here's one incantation of this trap I fell into.

```
-----Low priority task segment-----
        struct IORequest *msg;
        struct MsgPort *port;
        /*  msg initialized elsewhere (possibly with CreateExtIO())  */
        port = CreatePort (foo port, 0);
        if (msg = GetMsg (port))
        {
                ReplyMsg (msg);
                if (msg -> io_Command == SPECIALVAL)
                        exit (-1);
        }
-----High priority task segment-----
        struct IORequest *msg;
        struct MsgPort *sendport, *replyport;
        replyport = CreatePort (replies, 1);
        sendport = FindPort (foo port);
        if (SPECIAL_CASE)
        {
                msg -> io_Command = SPECIAL.VAL;
                PutMsg (sendport, msg);
                WaitPort (replyport);
                GetMsg (replyport);
        }
        msg -> io_Command = NORMAL_VAL;
```

Here's what happens. The high priority task detects a special case, and sends a message to the low priority task with a special value in the command field. Then it goes to sleep, waiting for a reply.

The low priority task wakes up with a message in its port. It gets the message, then replies to it right away so the high priority task won't have to wait too long.

The moment the low priority task replies, the high priority task wakes up again (since the WaitPort() just got satisfied), gets the message, and changes the command field back to its normal value.

Eventually down the line, the high priority task goes to sleep on something, and the low priority task starts where it left off. Remember that the low priority task had just replied the message and was about to check the command field for SPECIALVAL. But it lost control of the CPU when it replied the message, and the command field got changed back to NORMAL_VAL. So the test for SPECIALVAL will fail, and the exit() function will never get called.

The way to avoid this trap is to copy ALL the data you intend to examine into your own private storage before you reply the message. The fix to the above code would be this:

```
-----Low priority task segment-----
        int cmd;
        if (msg = GetMsg (port))
        {
                cmd = msg -> io_Command;
                ReplyMsg (msg);
                if (cmd == SPECIALVAL)
                        exit (-1);
        }
```

If you intend to modify the message before you reply to it, you should do all modification before replying the message.

Remember: when you reply a message, you give up all rights to use the data in the message.

COMAL Corner

by Brian Grainger

You have to go back a long way (Vol.10 No.2) to the last COMAL Corner. It is time to rectify that deficiency right now as there is quite a bit of news. Since it is a new volume of newsletters and consequently new ICPUG members are around it is probably worth reiterating what COMAL is all about.

What is COMAL

COMAL is another computer programming language. It can be regarded as combining the best bits of three different languages, BASIC, Pascal and LOGO, while adding some useful facilities of its own. COMAL is not to be confused with COBOL. Although both are structured languages COMAL is not a substitute for COBOL.

Like BASIC, COMAL is easy to use. You type your programs in and run them immediately. If there is a problem you can correct the program instantly and run it again. Lots of the commands in COMAL are identical to those in BASIC, e.g. DIM, FOR...NEXT, LOAD, SAVE, etc., so it is not like starting from scratch to learn it.

Like Pascal, COMAL includes commands to write structured programs. COMAL implements the following structures:

```
REPEAT...UNTIL
IF...THEN...ELIF...ELSE...ENDIF
WHILE...ENDWHILE
CASE...WHEN...OTHERWISE...ENDCASE
```

In addition procedures that can be called by name, rather than line number, can be written. They allow parameters to be passed into and back out of the procedure. Variables used in procedures can be made to be recognised only within the procedure so that no confusion can occur with those in the main program or other procedures.

Like LOGO, COMAL includes all the Turtle graphic commands, such as FORWARD, BACK, RIGHT, LEFT, SETHEADING, HOME, which allow easy plotting on high resolution graphic screems. Standard graphic commands such as PLOT, MOVE, DRAW are also included. Thus to draw high resolution pictures in COMAL it is not necessary to do numerous PEEKs and POKEs to set up the high resolution screen and then draw on it.

COMAL then adds to these facilities such things as Toolkit-type commands like AUTO, RENUM, DEL. Program lines are checked for syntax error on entry and meaningful error messages are given. For the 64, commands are added to define and control sprites. Programs can be built up by merging library routines from disk or cassette. Additional commands such as PRINT USING, SELECT OUTPUT are added as are new arithmetic operators such as MOD and DIV.

Versions of COMAL

All the above features are included on the 0.14 version of COMAL for the Commodore 64. This version has recently been enhanced to what we now call COMAL 0.14 Power Driver. Upwardly compatible with 0.14, Power Driver adds the following:

- Built in error messages (no disk access required)
- Even more memory available for programs - now over 14K
- Built in text and graphic screen dump facilities
- Uses upper case to show keywords for cartridge compatibility
- New built in commands:

BITAND - BITOR - BITXOR	bitwise operators
BYE	leave COMAL
CURCOL - CURROW - CURSOR	return cursor position and move cursor
DIR	disk directory in program
FREE	free memory available
GET$	get character from a file
INKEY$	get from keyboard
INPUT AT	Input from screen location
PAGE	clear screen/form feed
PI	3.14159266
PRINT AT	print at screen location
RANDOMIZE	seed the random number generator
SCAN	scan program for errors
SPC$	print spaces
STR$	convert numbers to strings
TIME	returns jiffy count
VAL	converts string to number

Even existing users of 0.14 COMAL will find the extra memory and commands worth updating for.

The COMAL cartridge, version 2.01, exists for the Commodore 64. It includes

all the above and has many more commands and facilities. An error trapping structure is included as is LOOP...EXIT...ENDLOOP. Additional editing commands such as FIND, CHANGE and TRACE are added. Text can be plotted on high resolution graphic screens in various sizes and directions. Windows can be created. About 30K of memory for programs is given plus the ability to add user defined machine code programs and packages.

A cartridge also exists for the 128 mode of the Commodore 128.

A version 2.2, very similar to version 2.01, exists for the Commodore PC range (as well as IBM PCs/PS2s or compatibles). Readers of Byte will know that a demo version is now available from Denmark. I now have a copy available for distribution and although classed as a demo version it gives you all the facilities of COMAL without restriction.

A version for the Amiga is currently under Beta test.

How to obtain COMAL

COMAL 0.14 Power Driver on fast loading diskette is available from myself (address inside front cover) and the usual software library rules apply.

The COMAL cartridge for the 64 or 128 is available from UniComal A/S, Tvaermarksvej 19, DK-2860 Soborg, Denmark. Tel +45 1 673511. Contact UniComal for latest prices.

The PC version is available from me subject to usual software library rules. Instructions and details of how to obtain the PC COMAL compiler are included. I prefer to supply one 720K 3-1/2 disk and this will include sample programs. If 360K 5-1/4 disks are required the sample programs will not be included unless two further 5-1/4 disks are included.

COMAL software library

Disks of software exist for COMAL versions 0.14 and 2.01 as follows:

For COMAL 0.14

UK COMAL SIG (Nos. 1, 2, 3)
COMAL Today Disks (Nos1-17)

For COMAL 2.01

Cartridge Demo Disks 3 and 4
TPUG 2.0 Demo Disk

1520 Printer/Plotter Disk
Software Tools (3 disks)
COMAL 2.01 UK Disks (Nos.1-4)
COMAL Today Disks (Nos.6-17)

I have copies of the above in 1541 format and Joe Griffin holds 8050 format copies.

Other COMAL news

1. I mentioned above that COMAL cartridges for the 64 are only available from Denmark. There is the possibility of obtaining one on the second-hand market however. I know of two ICPUG members who have one for sale. They are:

Dennis Corbett, 115, Ashford Road, Bearsted, Maidstone. Kent ME14 4BT. Dennis is asking £6 for his cartridge.

Tony Gogay, 4, Pittmansfield, Harlow, Essex. CM20 3LA Tel. Harlow 31168. No price known.

2. The definitive reference manual for COMAL on the 64 is 'The COMAL Handbook 2nd Edition' by Len Lindsay. This is quite expensive at about £24 from Prentice Hall. However I have a spare and John Bickerstaff has a spare copy I believe. I will let mine go for a small donation to my regional group funds (plus postage).

3. Tony Wright wrote to me at the back end of last year. He has COMAL 0.14 (fast loading version) and uses it with the 128D in 64 mode. He found that under normal speed COMAL loaded in 1m 45s while under fast loading speed it took 13s. With the Final Cartridge enabled the times came down to 21s and 8s respectively. He also found that Final Cartridge did not speed up loading or saving of COMAL programs.

4. I mentioned above that an Amiga version of COMAL is under Beta test. I am hoping to receive a copy in the near future and when I do my findings will be reported in COMAL Corner. Initial news is that like Amiga BASIC it boots up with two windows, an output window and an editing window. However RUNWINDOW- will make it just the one window like the good old 64 editing environment. COMAL works with virtual windows which means when the window is resized text is drawn instantly. That sounds a bit better than Amiga

BASIC. The other big plus point for this Amiga COMAL is that packages can be created in Assembler, C, Forth, Modula 2 or any other language that produces machine code. What most users will probably be interested to hear though is that packages can also be written in COMAL. This should make life a bit easier. Amiga COMAL also supports the PASS command so that CLI commands can be executed from COMAL. There is also an enhanced TRACE facility. I am indebted to Dave Stidolph of the US COMAL Users Group for these notes. It all sounds very interesting.

Doktorrr Rruthh...!

Well, we all saw in the Newsletter that Dr. David Annal was undoubtedly the leading sex expert for computers... However, the extent of his diabolical research did not become apparent until a recent meeting of ICPUG South East when he spoke on such a seemingly innocent subject as Amiga graphics.

Having lucidly explained the technicalities to the so far unsuspecting audience, David swiftly drew as a demonstration a woodland scene, and then stated that he would add the figure of a wood-nymph, which he 'had prepared earlier'. Enthralled, we saw the voluptous - topless! - figure of the young lady appearing on the screen... and then, with a sudden horrifying flick of the mouse button, the face became clear.

Are our readers ready for this? It was the distinguished bespectacled face of a most eminent gentleman, without even the protection of a sombrero. A convulsion gripped the audience. There was noise, chaos even... Lest this journal be burned by ICPUG fundamentalists I dare not say more. Even Frankenstein in his wildest dreams never thought of this.

But then of course poor old Frankenstein never had the chance to take out all his frustrations by doodling on an Amiga screen... Whatever Mrs.Whitehouse might say, we're better off with the Amiga!

for the **AMIGA**

Transactor

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EASY: Word processing for the two-finger typist

by Michael Hatt

Easy is a PC word processing program from Micropro, who make it clear on the packaging that they are "the makers of Wordstar". Rumour has it that Easy begat the notorious Wordstar 1512 which in turn begat the rather more respectable Wordstar Express. In any event, as I am the owner of a simple PC clone (Commodore PC-1) looking for a simple word processor, and for that matter rather a simple soul myself, the name Easy was for me certainly an encouraging start, whatever other idiots may have done with it since!

The program comes in a bright blue box which contains a similarly coloured manual known as the Guide, a cardboard "key map" for sticking across the top of your PC keyboard, and a sealed plastic envelope with no less than FOUR 5 1/4 inch disks. These are the Program and Dictionary disks, a Tutor disk which allows you to learn about the basic operation of Easy and then go on to more complex operations at your own pace, and the Installation disk which is used to set up a data "Text disk", make copies of the Program and Dictionary disks for actual use and then set up the CONFIG.SYS file in your DOS so that it includes FILES=20.

You must have two drives to use Easy. If they are both 5 1/4 inch, or if you are a hard disk user, the installation is likely to be straightforward, but awkward chaps like the Hatter with drive A 5 1/4 inch and drive B 3 1/2 inch tend to cause problems! There is a custom setting in the installation program which appears to work if you tell it drive B is really a 360K job after all, but if in doubt do some xcopying and edit CONFIG.SYS yourself. In either case, I'm still having problems mainly with failing to find the printing routine files if I try to work with the program on the 3 1/2 inch drive and the text disk on the 5 1/4 inch drive - fortunately the normal way is to work the other way round to use the extra capacity for the text disk.

It is also possible to set up your copy of the Program disk to make the best use of your printer's features by running the "printers" program on the Installation disk. This provides a choice of seven screenfuls of printers including two standard types if your printer doesn't appear in the list. The information is repeated in an appendix at the back of the Guide. My only query on this simple means of setting up is that once one has a little experience it would be nice to have the chance, as in Able-1 bundled with the PC-1, of writing in the actual hex versions of the printer's escape codes so that you can choose which features to support (providing you make a note of any which you bring in under a "false name").

The Guide is very good - it is simple to follow and includes tips and even a general "what is a computer.. what is word processing..." section for beginners. In conjunction with the Tutor disk, and the keyboard map if necessary, it should allow real novices to get started rapidly and with confidence. What is more, the operation of the program actually is as easy as the name and the comments in the Guide imply. The user needs little more than knowledge of the normal "typewriter" keys and the cursor and "enter" (or "return") keys to use the program successfully.

The system is one which appeals to me as a long time user (including for this article!) of Superscript 64. At any point you can call up a menu to tell you the choices available for your next move, and unlike Able-1 you don't need to remember all the function keys. It's all done with THREE keys, a matter of some pride to Micropro - F1, F2 and ESC. F1 gives you the relevant help screen, F2 gives you one or two menus, and ESC takes you back to the previous level of the program. It really is that EASY! The only minor criticism might be that the top four lines of the screen are wasted and left virtually blank just so that in the corner there can be a reminder message about the famous three keys - surely this could have all been put on one line! For those of you with CGA the program makes good use of colour.

Easy has most of the typical features one would expect for personal and simple business correspondence, although there is no mailmerge provision. The program does support a number of the Wordstar dot commands and Easy files are compatible with Wordstar and Wordstar 2000. The small use I have so far made of the spell checker suggests that it works adequately. The overriding impression, particularly at the typing/editing stage, is of a relatively uncomplicated and accordingly simple to use program - one that the "two finger" typist is unlikely to get lost in.

Clearly from the above description this program does not set out to be a full business word processor, but for more personal use it certainly has its merits. As indicated, with an unusual arrangement of equipment there may be some extra work at the installation stage, but for the beginner with a straightforward system - remembering that two drives are essential - Easy offers a very painless introduction to word processing.

Easy is available to club members at a special discount price - contact the Discounts Officer for details.

Learning FORTH Backwards

by Richard G Hunt

CHAPTER 2 - Interactive numbers

Forth is an interactive language, and there is no better way of learning this than at the keyboard. Beginner or not, experience at entering data to a computer system will teach you much about that system. All the examples in the text that follows should be keyed in as shown. If typing errors are made, pause to examine the result - it may be valuable! It is by observing the impact of errors on the computer system that much may be made clear about how a system works.

Without a doubt there are two things that everyone who is not familiar with a Forth system will do fairly quickly. One is to cause an error message. The other, potentially more serious, is to cause a system crash. The latter is fairly final, but not at this stage too serious. No advice can be given, except to remember what actions caused it. It can be particularly frustrating when a long time has been spent at a task and the whole of that task is lost. Writing to file frequently minimises such loss and everyone at one time regrets not doing so! For the beginner at Forth, a crash may be for a number of reasons. All of them boil down to a basic lack of understanding. At later stages the reasons may be incorrect code and only careful analysis will cure it. For the time being, it is sufficient merely to restart the Forth system. Some machines permit various levels of reset. For example, with the Commodore Plus 4, pressing the STOP key and the reset button together, restarts the computer in the machine code monitor. My implementation of Forth (which I still crash from time to time) may be restarted without loss by restarting the program at the Forth warm re-entry point (which in FIG models is invoked by a JMP instruction at ORIGIN + 4. ORIGIN is, as it implies, the beginning of the Forth system code). Not all implementations and machine combinations are thoughtful enough to provide such a facility! The message is: for the time being ignore system crashes. They will happen.

Error messages however are not final, and do make an attempt at indicating the nature of the error. Some systems will provide textual error messages. Others, the majority, will utter a terse ? MESSAGE # and a number from 0 to about 24. Try testing your system: enter the word FRED <return> on your keyboard. Forth should respond either -

```
FRED ? MESSAGE # 0
```


or perhaps something like -

```
FRED ? WORD NOT FOUND
```

How such messages are generated or how the Forth programmer may use them is not relevent here. The list of message numbers and their associated meanings may be found usually with program documentation.

When the word FRED was entered, Forth decided that it didn't know the word. Forth knows quite a number of words, and additionally it knows how to recognise numbers. It will also recognise that it has been given nothing to interpret.

Supposing you have switched Forth on for the first time. What do you see and what does it mean? What also must you do to make it work? On starting the system, there will probably be displayed a proprietary message; let us call it the sign-on message. The cursor will be blinking away on the next line awaiting terminal input. That indicates that the system is ready for you. You might decide to press the Return key. The system responds OK. It's still ready for you, for you gave it nothing to do. You might try to add two numbers, say, to display the sum of 2 and 5. For this you need the Forth words mentioned in Chapter 1 (ICPUG magazine Volume 10, No 3, May/June 1988), + and . (plus and dot). + requires two signed integers on the stack and . will output the top stack value as a signed integer (1). Therefore in order to perform the addition, first the numbers 2 and 5 must be placed on the stack, so -

```
2 5 <return>
```

Forth responds OK. Next enter

```
+ <return>
```

Forth responds OK again. Finally enter

```
. <return>
```

At last Forth responds

```
7 OK
```

The three operations may also be performed on a single line of input, thus -

```
2 5 + . <return> 7 OK
```

You will remember from Chapter 1 that Forth uses Reverse Polish Notation, and that that is why you had to enter "2 5 +". See what happens when you forget, and try entering

```
2 + 5 . <return>
```

Forth will respond with something like

```
. EMPTY STACK OK
```

or

```
. MESAGE # 1 OK
```

or even

```
0 OK
```

It is trying to tell you that it could not perform correctly because the stack did not hold the proper quantity of data items needed for the function. Obviously it is necessary to know whether any and if so how many values are expected by a given Forth word. The Forth glossary will indicate this by giving the stack effect for each word.

If a Forth word is shown by three dashes - - -, a word that takes a single value from the stack and removes it from the stack without placing any further value will be shown as

```
( n1 ---)
```

+ takes two values and replaces the sum. Its stack effect is shown as

```
( n1 n2 --- sum)
```

Ignoring the stack effect of Forth words is sure at some time to cause the system to fail.

Some Forths provide a word that allows you to examine the contents of the stack, a non-destructive stack display. If yours does not here is a definition. Sometimes S0 which is the initial value of the stack pointer is not provided as a

visible word. It is needed for DEPTH and is therefore defined below. Enter <return> at the end of each definition. The definitions are laid out here for legibility and all the spaces and indentations are not required by Forth.

```
6 USER   S0
: DEPTH  S0 @ 2 - SP@ - 2 / ;
: .S     CR DEPTH IF SP@ 2 - S0 @ 2 -
            DO I @ . 2 +LOOP ELSE
            . STACK EMPTY THEN ;
```

With these definitions, you can repeat the above addition and watch the stack: the dialogue could be like this -

```
2 .S <return>
2 OK

5 .S <return>
2 5 OK <return>

+ .S <return>
7 OK

. .S <return> 7
STACK EMPTY OK
```

It can be seen that the last or topmost number on the stack is the one on the right - the last to be displayed. This is known as the TOP OF STACK (TOS). Next is the second (2OS), then the third (3OS) &c. We have seen + at work. The other operators - (subtract) * (multiply) / (divide) work in the same way. For an exercise, place some numbers on the stack and use .S to observe them. Enter some operators, one at a time and see the effect.

Because Forth works only with integers there are some other operators that BASIC often does not have. The word MOD leaves the remainder or modulo of a division. Mixed mathematical operators such as /MOD */ */MOD and others that relate to double or unsigned numbers are also supported. /MOD is a variant of / that leaves the remainder and quotient on the stack. Its stack effect is shown as

```
( n1 n2 --- rem quot)
```

*/ (n1 n2 n3 -- n4) is a function that leaves n4 = n1*n2/n3, but the product of n1*n2 is a 31 bit (double) result which provides greater accuracy than with n1*n2/n3 all as single numbers.

*/MOD (n1 n2 n3 -- n4 n5) is similar, leaving the remainder n4 and quotient n5 of n1*n2/n3. Like */ it uses a 31 bit intermediate result for accuracy.

Forth supports also the relational operators = < > 0= 0< (note the spaces). Use of these will be discussed later.

As a further exercise experiment with some simple numbers and the mixed operators, noting carefully the number of arguments required by each to be on the stack. Reference to the stack effects listed in the glossary may help. (The glossary of words in the dictionary is usually part of the program documentation.) You may also care to mix operators and attempt to calculate the result before Forth does it for you. No, its not a test of your speed at mental arithmetic but of using RPN and the stack! For example why is

```
2 3 + 5 *
```

different from

```
2 3 5 + *
```

and what does a parenthesis do (see Chapter 1) as in

```
( 2 3 + ) 5 *
```

At this stage another possibly perplexing situation may have arisen from the experimentation above. In practising, the word . was used to display the value at the top of the stack. For someone unfamilar with Forth it is quite likely that a space or spaces were omitted on occasion. Consider the following:

```
345 9876. <return>
```

Forth will respond to that OK (without issuing an error message), but no number will be displayed by the system. The point is that the full stop is no longer dot but a kind of decimal point. Forth uses only integers and does not handle floating point arithmetic, so how can this be? The answer is simply that the point acts as a positional marker, and its position in the number is stored in

a user variable called DPL. The table below demonstrates.

NUMBER	VALUE OF DPL
12345	0
12345.	0
1234.5	1
123.45	2
12.345	3
1.2345	4
.12345	5

In other words, the value of the number of digits to the right of the point is held in DPL. That is important when dealing with formatted output, which will be discussed at a later stage. For the time being note that all the seven examples given above are held on the stack as the same number (the difference being noted in DPL).

There is one other function that the point performs. It tells the Forth interpreter that the number in which the point is found is a double precision number as opposed to single precision (see footnote). Thus two cells of the stack will be occupied by one number and the use of .S will confirm this.

```
123. .S <return>
```

displays

```
123 0 OK
```

```
65536 .S <return>
```

displays

```
1 1 OK
```

To display a double number the word D. is used. Its stack effect is

```
D. (d1 ---)
```

It requires a double number on the stack, i.e. two cells in the prescribed format. What it does is take the high order cell (topmost), multiply it by 65535 (2^16-1) and add to it the value of the underneath cell. 65535 * 0 + 123 = 123, or 65535 * 1 + 1 = 65536.

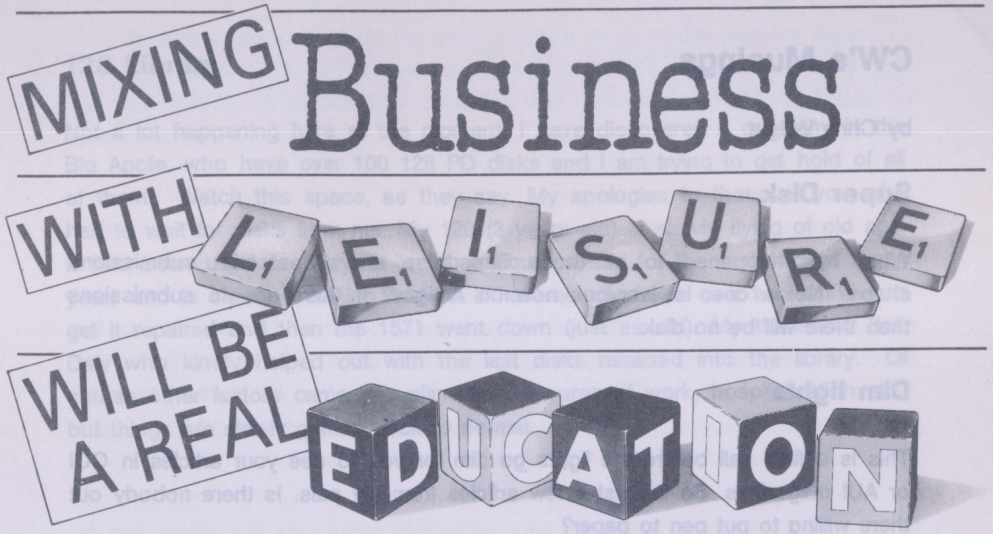
A single precision number at the top of stack may be converted to a double number by S->D (n1 — d1). Its effect is to push a zero to the top of stack as the high order cell. The operation may be reversed by using DROP to remove the top of stack.

FIG Forth does not supply a vast array of words to manipulate double numbers. D. is one. D+ (d1 d2 — dsum) is another. Most others must be defined as required. Before that can be done there are other more important matters to discover.

Footnote

Forth holds numbers as 16 bit integers with the sign held in the most significant (16th) bit. Thus signed single precision numbers may range between -32768 and +32767. Unsigned single precision numbers in the range 0 to 65535 are manipulated with words like U* U/ and U. Double precision numbers are held as 32 bit numbers with the sign in bit 32 and range between -2147483648 and +2147483647 or +/- 2^31. On 6502 cpu based systems the high order cell is on the top of the stack, with the sign. A Forth cell is 16 bits wide, and is called a "cell" to avoid confusion with "word" which has different meanings for Forth and other programmers.

For simplicity, use of the term "numbers" implies single precision, and the term "double number" 32 bit precision.



Commodore computer show

Britain's brightest event for Commodore computer users is back! And there's more to see than ever before.

This show has three main themes covering some of the major uses to which Commodore machines are put. There are over 70 key companies who will be exhibiting their latest products, which means that just about everything that's new in the Commodore world will be on show!

Novotel Exhibition Complex, Hammersmith, London W6
Friday to Sunday
June 2 to 4
10am-6pm Friday & Saturday; 10am-4pm Sunday

Business

Many companies will be demonstrating their latest software and hardware, specially designed to release the full business potential of Commodore computers.

As well as products for the C64 and Amiga series, you'll be able to try out applications for the price-beating Commodore PC compatible micros.

And you'll also be able to attend seminars covering all aspects of using Commodore micros in your business.

Leisure

The C64 and Amiga computers are the most powerful 8 and 16 bit micros for producing fast-action arcade quality games. The range of new software on show will demonstrate how these machines' power is continually being stretched, producing faster and even more addictive games with superb graphics.

If you're a keen game player, you'll find there's so much on offer at the show you're guaranteed a real treat!

Education

Commodore micros are now used as educational tools all over the country. With the development of BBC Basic on the Amiga, and the advent of Desktop Video (combining TV pictures with text and graphics), the range of educational applications is endless.

At the show you'll see how the latest software packages are making real breakthroughs in the educational sector, and be able to try them out for yourself.

Special Events

As well as special events and presentations, you'll also be able to meet some of your favourite celebrities, and maybe get a chance to talk with them about how they use micros in their work.

So for a great day out, whether you want to see what the future holds for Commodore computers, to buy the latest software or to get advice on specific applications, the Commodore show is the place to go. And if you send in the coupon today, we'll knock £1 off the price of each ticket!

● ***For the first time we are offering a family ticket for just £11 allowing entry for two adults and two children – saving up to £7 off the usual entry price!***

How To Get There
By Underground: *Hammersmith (Piccadilly, Metropolitan & District).*
By Bus: *266, 714, 716, 290, 30, 72, 74, 74.*
Car parking facilities available at the Novotel.

Advanced ticket order Commodore computer show

POST TO: ***Commodore Show Tickets, PO Box 2, Ellesmere Port, South Wirral, L65 3EA.***

Please supply:

☐ Adult tickets at £4 (save £1) ..... £ _____
☐ Under 16s tickets at £2.50 (save £1) ..... £ _____
☐ Family ticket at £11 (save £7) ..... £ _____
Total £ _____

☐ Cheque payable to Database Exhibitions
☐ Please debit my Access/Visa card no:

Expiry date: __/__

Signed .....

Admission at door: £5 (adults), £3.50 (under 16s)

Advance ticket orders must be received by Wednesday, May 24

Name .....
Address .....
.....
Postcode .....

PHONE ORDERS: Ring Show Hotline: 051-357 2961
PRESTEL ORDERS: KEY *89, THEN 614568383
MICROLINK/TELECOM GOLD ORDERS: 72:MAG001
Please quote credit card number and full address

A657

CW's Musings

by Chris Wright

Super Disk

What has happened to all those Superbase and Superscript submissions chaps? Not a one. Is everyone now on Amigas? If there are no submissions then there will be no disk.

Dim lights

This is a final call before the lights go dim for you to see your articles in CCI or AUI magazines. So far just a few articles from my pals. Is there nobody out there willing to put pen to paper?

W.P.'s

Those following my comments about a good wordprocessor on the Amiga will soon be seeing a full blown article on PROTEXT 4. I have used this program on the PC and now that it is on the Amiga I bought a copy and fast. Sadly I was in hospital when it arrived but I read the manual back to front three times. I could actually write an article just after reading the manual but I will wait until I can really put it through its paces. The review that appeared in CCI was a good one but I will be skipping all the usual facilities. It has headers, footers, justification..... Such as these are now pre-requisites of ALL good word processors. Instead I will concentrate on the really good little features that until now, have not appeared in the recent batches of other W.P.'s.

Before leaving this topic, I can't help but mention the fantastic help features, programmable macro, help and glossary functions, phrase storage and better still the instant print-out feature. This last is obtained by NOT using Preferences but the printer drivers that come with PROTEXT. And lastly (yes I know you shouldn't start sentences that way) a lovely command line to TYPE your command in or run a program within PROTEXT. The sheer beauty of this program is that it is not as unwieldly to learn as WordPerfect and I can only say that it is very near to Superscript 128 in its ease of use and multiple features. Well done Arnor.

128 Library

Not a lot happening here at the moment. I have discovered a company in the Big Apple, who have over 100 128 PD disks and I am trying to get hold of all of them! Watch this space, as they say. My apologies to those of you who had to wait for disks from me. My 128 (3 years old) is slowly dying of old age. It has been used five days a week, 8 hours a day for the last two of those years and is slowly breathing its last. It has recently taken over two months to get it repaired and then the 1571 went down (just as old). My thanks to Bob Daly who kindly helped out with the last disks released into the library. Of course other factors came into play like pressures of work, hospitalisation etc., but things are slowly getting back to normal.

A quick guide to a Startup-Sequence.

By Ken Turner

The first sequence is taken from a copy of Workbench 1.2 which no doubt everyone has seen but may not fully understand. Lets have a closer look at it line by line.

Workbench 1.2 Startup-sequence

```
Echo "A500 Workbench 1.2  Version 33.56  23-APR-87*N"
```

This is the text that is printed onto the screen when the disk is loading. The *N introduces a blank line between the next screen message. You may place any text you like on this line such as "Freds copy of Workbench is now loading. Please wait"

```
BindDrivers
```

This command integrates any device drivers you may have in the Expansion drawer into the system for example a plotter, and as such can be removed from the startup-sequence if you don't possess such a device. This shortens the loading time by a couple of seconds.

```
If EXISTS SYS:System
Path SYS:System Add
Endif
If EXISTS SYS:Utilities
Path SYS:Utilities Add
Endif
```

This portion of the sequence checks for the existence of the System and Utilities directories on your disk and adds a path to them if found. This has the effect of being able to run any routines in these directories without typing the full pathname i.e Format... instead of System/Format... You can add more paths to your disk if you wish. If you have deleted these drawers from your disk you may remove these commands and speed up the loading process still further.

```
Dir RAM:
```

This forces the system to recognise the ram disk and therefore display a clickable icon on the workbench screen.

```
Path RAM: Add
SetMap gb
```

This sets up the correct key map for the keyboard. I find mine works perfectly OK without this command and so it could be deleted.

```
Addbuffers df0: 20
```

The Amiga disk drives load data into a memory buffer before it can be used elsewhere. If a program is small enough to fit into this buffer, it needn't be recalled from the disk again. There is a memory overhead of 544 bytes per buffer used.

```
LoadWb
Failat 30
```

The Failat command halts the startup-sequence if the Amiga returns an error code limit of, in this case, thirty. This particular line is included for the benefit of the Setclock command below.

```
SetClock >NIL: Opt Load
```


The command setclock loads the time from the clock in the memory expansion board (if fitted). If for any reason the time and date is incorrect you can reset the time/date by using the Date command and then re-saving it to the clock by using Setclock Opt Save.

```
Date
```

The Date command has been included to display the new system time and date.

```
Endcli > NIL:
```

Finally this closes down the initial CLI.

Next we have the new Workbench 1.3 startup-sequence which has a similar set of commands but also some interesting changes. By studying this file you will be in a good position to tune your batch file now that Commodore has finally released 1.3 on an expectant world.

```
Addbuffers df0: 10
C:SetPatch >NIL:
```

This patches the ROM in 1.2/1.3 Kickstarts enabling recoverable alerts on an A2000. The >NIL: stops a message stating that Setpatch is in effect from being displayed on the screen.

```
Cd C:
```

This changes the current directory to C:, speeding up execution time a little.

```
Echo "A500/A2000 Workbench disk.  Release 1.3 version 34.20*N"
Sys:System/FastMemFirst
```

FastMemFirst, located in the System drawer, causes any fast memory to be allocated before normal chip memory

```
Binddrivers
SetClock load     (Opt no longer required)
Date
FF >NIL: -0
```

This command speeds up text output to the screen. -0 turns FF on and entering -n (in this case -n MEANS -n and NOT a number) turns it off.

```
Resident CLI L:Shell-Seg SYSTEM pure add
```

The resident command erases, replaces or, in this case, includes a new command in the list of memory resident commands. If you list your C directory you will notice that some of the commands have a P included in the protection bits shown at the end. Any of these commands which are included in the startup-sequence and/or in the Startupll sequence (see below) can be memory resident and then will not have to access the disk drive.

```
Resident c:Execute pure (As above).
Mount newcon:
```

The Mount command adds a new device to AmigaDOS. Newcon: is used by the new Workbench Shell (a much more powerful CLI).

```
Failat 11
```

This line traps the resulting error if the next batch file cannot be found.

```
Run Execute S:StartupII
```

By using Run and Execute together the Amiga will execute another batch file in the background while the rest of the original startup-sequence finishes.

```
Wait >NIL: 5 mins
```

This line will wait for five minutes for Startupll to finish.

```
SYS:System/SetMap gb
```

```
Path RAM: C: SYS:Utilities SYS:System S: SYS:Prefs Add
```

Adds additional paths to other directories. For example, if you tried to use the Format command from the CLI without adding a path to the System directory the Amiga would tell you it was an unknown command.

```
LoadWB delay
```


Adding Delay waits for the Startupll sequence to finish before loading the workbench.

```
Endcli >NIL:
```

There are two parts to the 1.3 version of the startup-sequences. Part two is shown below. More commands can be added when you become proficient with AmigaDOS and the Protect command.

Workbench 1.3 Startupll

```
Resident C:Resident pure
Resident C:List pure
Resident C:CD pure
Resident C:Mount pure
Resident C:Assign pure
Resident C:Makedir pure
```

All the above are included in the memory resident command list which helps speed up the startup sequence.

```
Makedir ram:t
Assign T: ram:t
Makedir ram:env
Assign ENV: ram:env
Makedir ram:clipboards ;set up CLIPS: assign
Assign CLIPS: ram:clipboards
```

The above list of commands make and assign directories to the Ram disk otherwise any text you may clip or copy in a word processor for example would have to be temporarily saved to the equivalent directories on your workbench disk.

```
mount speak:
mount aux:
mount pipe:
```

These lines add more new devices to AmigaDos.

```
resident Mount remove
resident Assign remove
resident Makedir remove
```

You can remove resident commands from memory but, if you have the memory to spare, they can be left resident to speed up subsequent use of these commands.

```
break 1 C
```

Signals to any other processes that its OK to continue.

For the sake of completeness I have included below an example of a hard disk startup-sequence.

```
Mount DH0:
```

This lets the Amiga recognise the existence of a hard disk unit.

```
^DefSYS DH0:
```

DEFSYS is a public domain command, available from the library, which allows all the system directories to be ASSIGNed to the hard disk in one go.

```
CD DH0:
```

Moves to the root of the hard disk directory.

```
Execute S:Startup-Sequence
```

Executes the full 1.3 startup-sequence from the hard disk. This takes just 13 seconds in my case. Now you know what you want for Christmas.

I hope you have enjoyed this quick trip around the startup-sequence. In future articles I hope to delve into the mysteries of the Mount command and the associated Mountlist.

Good Grief, Commodore, NOT AGAIN!

by Joe Griffin

The opinions and comments contained in this article are my own and do not constitute an official statement in my capacity as Vice-Chairman of ICPUG. The findings are based on my experiences with my own 128-DCR (metal cased machine) and a friend's 'Portable' (plastic cased model). The latter machine has been used with both the 'as-fitted' (Version 3) ROM and a 'Fix-it' (Version 5) ROM.

I would welcome feedback from other owners of the metal cased machine, particularly from any American users.

Back in the summer I bought a C-128, to take over from the PET as my main workhorse. After some consideration, I decided to buy a new 'Desktop' model for four main reasons.

- Better shielding (less radio interference)
- No fan (quieter)
- 64k video RAM (allowing more intricate screen usage)
- latest disk ROM (fixing the dreaded 1571 bugs)

At least that's what I thought. After an initial period of teething trouble during which a Video RAM fault appeared, I sent the machine back for repair twice. The first time it was returned to me, there was no change in the fault. The second time it came back, the fault was fixed but after half an hour, an I/O chip blew and it got very fussy about accepting anything from the keyboard. At that point I was given a new machine! Touch wood, it's still working.

At last, I was able to compare the results obtained with my requirements. Unlike my PET which made any radio within 50 feet howl, the C-128 gave only minimal interference. It does exhibit a slight hum from the power supply, but compared with earlier 128D's, it's virtually silent. I'm just starting to get into Video, but the extra ram does appear to be useful for things like a 48 kbyte ram-disk. Finally the 1571 seemed to be a good fast drive and as it would happily compile a large program with PetSpeed, I assumed it was bug-fixed (an earlier 1571 fell over in a fairly spectacular fashion until a 'fix-ROM' was fitted). I transferred a large, important database from the 8250 to the 1571 and was pleased by the general behaviour. Time passed and I used and altered the data, taking regular backups.

Then I heard that Superbase 3 was nearing the beta-test stage. I rang Peter

Maclaurin of Precision to offer my services, explaining that I had a new 128D, so I would be able to check its behaviour with the fixed ROM. My complacency was somewhat rudely shattered when Pete asked "Why do you say it's got the fixed ROM, have you put a new ROM in?" I explained that it was a new machine and therefore... Pete interrupted me and explained the simple fact that just because Commodore have fixed the ROM doesn't mean that they actually put it into their computers! He advised that I use the Greg Perry program to check it (see ICPUG National Magazine Vol 9 No 3, p 239).

That evening, I typed in the few lines of Greg's program and set it to work. It chuntered away, creating a large relative file and writing a few records. Then it continued, apparently reading from the relative file and writing into a sequential file. This was fine, obviously there were no bugs in this drive! Then came the point at which the write file was closed and re-opened for reading. Up came the message 'write file open error'. Well at least it wasn't the original bug! After some time experimenting, I found that it left the sequential file as a 'splat' file, rather than a correctly closed one. So much for a bug-free drive.

At that point I started to look at my database and found widespread corruption. Fortunately my earliest backup (of 4) was only suffering from major damage, not total disaster. Using the Superbase Utility program I was able to get back all but 5 records and I was able to copy those across from the 8250 version.

After talking to both Precision and Commodore at the PC Show, I opened the 128D and checked the ROM number - it is 318047-01 (DOS $62A0). I was told that it is actually version 4a, a partially fixed, stop gap version. The theory I was given for its existence is that if Commodore actually released the ROM, it would be seen as an acknowledgement that earlier versions were wrong and the door would be open for all kinds of law suits.

After some delay, I obtained a version 5 ROM (Part No 310654-05). This was fitted and checked. The test program behaved correctly and soon everything seemed OK...

A little time later, I tried to back up one of my work disks, using 'Gulp Copy' a utility (from Transactor) which uses the 1750 RAM Pack to buffer an entire disk. It hung! Well, I thought, some of the routines have moved around a bit and there isn't a lot I can do about it until I have time to look at the code.

Some considerable time later I bought 'Big Blue Reader'. It worked well on the 1581 but hung on the 1571. The manual did advise upgrading to Version 5 roms, so it couldn't be that. I quickly checked this by running it on a friend's 128 (with Version 5 ROM). It worked happily. A copy of the ROM code was taken from each machine and compared - they were identical!

What I had overlooked is that the latest 128D's (referred to as 128-DCR) are

the 'cost reduced' version. I believe that there is also a 1571-CR. In my 'D' there is no separate disk controller board, just a single motherboard. Most importantly, the drive does not include the Western Digital 1770 controller, which handles the burst mode activity. I suspect that my problem was that the ROM was trying to use burst mode with a controller which was not there. Discussions with one source have suggested that the 318047-01 ROM is essentially version 8 of the 1571 ROM and that this will be offered in future, in place of version 5 as an upgrade.

From my findings, it appears that we are right back to stage one with the 1571 bug. Until such time as Commodore can offer us a working fix, any 1571 drive using the 318047-01 ROM should be regarded as suspect and not used as a double sided drive when important data is at stake. If in doubt, use the Greg Perry program to check out your drive.

As I stated at the start of this article, I would welcome feedback from other users, just in case I have a 'rogue' machine. In the meantime I am contacting Commodore for their comments. I will report progress through this journal.

Tel: (0860) 254344

Bytes & Pieces
37 Cecil Street
Lytham FY8 5NN

Dear Amiga User,

We would like to give you the latest news of our line of products including some exciting new ones, but before that just to remind you about the existing line.

1.5 Meg internal Spirit expansions £150 for the A500 and £375 fully populated; and £175 for the A1000 or £399 fully populated. Faster PAL chips (A1000) £19.95. Faster 68000 8 MHz £19.95 or 10 MHz £25. 512K of DRAMS £85. A500 512K boards with clock and populated £110. The new A500 2 Meg internal board uses 1 Meg chips and is £199 for 0K. Send a disk with an S.A.E. for the Spirit demo.

We can now get the 8520 interface chips POA. 64K Centronics printer buffers £64 with power supply. Screen filters to cut the glare and help reduce the flicker to enhance the image £35. 1.3 Enhancer kits available with 1.3 ROM 1.3 Workbench, extras and manual. POA.

Postage on the above is £3 for the boards and £2 the remainder. Access and Visa welcomed.

We have been overwhelmed by the success of our very affordable Hard Disk Systems. We have obtained read speeds of 370K a second from some of the drives (faster than a RAM disk). We can sell you a ready-to-run system or the parts you need to set up your own. Choose the controller card for your application. Two drives on one system? Certainly. A 6-headed drive, 42 Meg complete system at £499 (£11 courier).

Where can you get a 105 Meg drive for £750? Us of course, you would expect to pay over £1,200 elsewhere. Let us quote you a system for your A500/A1000. Although we will supply 20 Meg we find these drives fill up quickly and the user is soon disappointed. Commodore's A590 20 Meg drive will sell for £590!! See how much you can save with us. We are on the street with ours now; CBM state September for theirs. We leave you to decide.

Now the really good news. A500/A1000 owners will not now need to buy an A2000/A2500 when we release our 2000 clone expansion box. With its own power supply, 4 slots for 2000 cards and three slots for AT cards, one for XT cards and room for a 5¼ floppy, full Zorobus spec and autoconfiguring, ability to use CBM's bridgecard and only £399!! Expected release date before the CBM show.

You will also be able to slot on to it our new 68030 (no misprint) with 2 Meg RAM and running at speeds of 32 MHz with the ability to turn down the speed for full software compatibility and at under £1,000. To be released soon.

A brand new software package called VIDEO EFFECT 3D is to be released by us very soon. All the others rolled into one and more, best describes it. Demo disk available, send your disk and an SAE.

More new goodies on the horizon and these will be shown at the Commodore Show in June. Come and see us there or send an SAE with two disks for both demos. A1000 owners are safe with our support.

CW

Headering disks in the 1571 drive

by Joe Griffin

Most users will know that the 1571 is a double sided drive which can be made to act as a single sided (1541 type) drive. Fewer may realise that it can actually use both sides of the disk as quite distinct 1541 disks.

A brand new disk can be headered in one of three ways:

- As a standard double sided disk (1571 format)
- As a standard single sided disk (1541 format)
- As twin single sided disks (1541 format)

It has been said that once a disk has been headered as either double or twin sided, it cannot be converted into the other. After some experimentation, I found that it could be done fairly easily, with full success.

If a twin-sided disk is to be converted into a double sided, all that is required is that the ID code for the double sided disk is the same as that used on the second side (described in the manual as side one) of the twin-sided disk. This can be determined by setting the drive into 1541 mode (U0>M0), selecting side one (U0>H1) and reading the directory. Alternatively you can first header side one of the disk using the required ID, then header the disk as double sided.

To convert a double sided disk into a twin sided, requires a trick. When the drive tries to access the second side of the disk, the head begins to hunt, as the information it is reading is not for a twin sided disk. At this point the drive door should be opened. This causes the head to bump, and the drive now knows where it is. As soon as the head is heard to start moving, the door should be closed. Formatting will then proceed as normal.

I have written a short program to header a disk in any drive. If a 1571 is being used, the three formatting options are given. If anyone would like a copy, please send me a blank disk and return postage.

Penpal update

by Ian Cassidy and Mark Stanton

The plea for more pen pals in the last update resulted in one reply. So once more I must urge all you fellow Commodore owners to get writing and send your applications to Penpal headquarters. As this is a new year and there may be some new members who recently joined the ranks, here is a quick reminder of what Penpal SIG is all about.

Penpal SIG was formed in 1988 to allow members to make contact with other members who have similar interests and hobbies, or would like to simply exchange information on their particular micro. As with all ICPUG services there is no charge. The only requirement is a stamped addressed envelope for a reply to be sent.

If you are not particularly keen on writing as a method of communication, then one member from Ayrshire has the answer. Audio tape recordings take only a fraction of the time to prepare and can be sent for the same cost as a first class letter.

I have been asked by another member to pass on the following information. Abbey Rauf has a contact with a large UK company who supply floppy disks at very low prices. 5 1/4 inch disks for 40p each and 3 1/2 inch disks at 90p each, inclusive of postage and packing. You can contact Abbey at the following address. 372 Elm road, RAF Marham, King's Lynn, Norfolk. PE33 9NF. Thanks very much for your help Abbey, I am sure many members will pursue this offer.

I have a request for help with transferring files stored on cassette. Help is required in transferring Vic 20 programs to Plus/4 tape. The member can supply the necessary instructions for carrying out this task. The information in the letter states that someone with both a VIC 20 and 1541, or compatible drive, and a Plus/4 and Drive is required. Or perhaps some technical wizard out there knows a simpler method. Any help with this problem will be very much appreciated. The name and address is as follows : J. Hadlow, C/O Showground, Buchan park, Greendykes Road, Broxburn, W.Lothian, Scotland.

[Editor's note: it is suggested that members test disks (sample) before they buy. ICPUG is not able to guarantee the quality of any particular source of diskettes.]

Mid-Thames Group News

by Mike Hatt.

As this report goes on to disk we are looking forward to a presentation by Ariadne at our March meeting, and there are various plans maturing for other interesting events during the year. Several of us are keen for the Committee to get Simon Tranmer to come along for a 'Super*' evening, and there have been all sorts of other suggestions for events. Pete Maclaurin has undertaken to prepare a questionnaire for all current and former Mid-Thames members still known to us, to assess what sort of events will gain the greatest support.

Pete was also the star turn of our February meeting when he gave a talk, and a demonstration with PET and printer, of The Admiralty Method. This I should hasten to say is nothing at all like Cecil Parkinson talking on the Energy Position... Pete's father is a keen yachtsman with a particular love of pottering about the French side of the Channel, Saint Malo and so on including such treacherous places as Les Minquiers (have you read, or seen the film of, The Mary Deare?). The point about these waters is that there are horrendous rises, falls and odd currents of the tide which force the yachtsman to make long calculations (using the aforesaid Admiralty Method) before making any move, to ensure there will actually be water under the keel at each stage of the voyage!

Pete has helped considerably by putting the Admiralty formulae into a program which produces printed tide depth tables for specific locations on given days using the tables and other data published for yachtsmen. Effectively whenever his father goes off for a cruise, Pete presents him with a 'magazine' of tide depths for all the likely ports and other places of interest for the intended period of stay across the Channel, and a few days over as like as not. This makes it very easy to plan the cruise from day to day and alter the plans at short notice without having to disappear for half an hour or more to work out all the tides.

The printouts are very professional, typical of Pete, and it occurred to several of us that some yacht clubs and chandlers on the Channel coast might be quite keen to do a deal for this sort of service. However, so far Pete is resisting any such thoughts, so for the present his father and a few selected friends can still meander up isolated creeks, find relatively unknown restaurants and purchase fresh croissants without being followed by loads of other Brits!

The Mid-Thames Group meets on the second Thursday of the month at the Bourne End Community Centre, either in the Youth Club Room or the Dressing Room. Arrive with machines from 7-7.15 pm. to set up, main business normally starts at 7.45 pm.

Spreadsheets 4

by Brian Grainger

```
  U       V                    W                      X
1 £m      [menubranch menu]    This is the startup menu
2
3 menu    Receipt              Withdrawal             Change_interest_rate
4         Receipt into account Withdrawal from acco   Change interest rate
5         [£r]                 [£w]                   [£c]
6         [menubranch menu]    [menubranch menu]      [menubranch menu]

  Y       Z                    AA
3 Save    Period_end           Begin
4 Save the account detCalculate total inteReset account to sta
5 [save]  [£p]                 [£b]
6 [menubranch menu] [menubranch menu]    [menubranch menu]


  AB
3 Quit
4 Exit menu system
5 [quit]
```

I have now reached the final chapter in creating a simple spreadsheet. Last time (Vol.10 No.6) I completed the detailed workings of my spreadsheet to keep track of my Halifax Building Society savings account. The whole system was based around five routines:-

receipt - withdrawal - change interest rate - period end calculations - begin a new period

Each routine was called by pressing the appropriate function key. The system is crying out for an easy to use user interface and what better than a menu system like the spreadsheet program itself uses. I shall use Analyse! for the Amiga as my basis but the same will apply to Lotus 1-2-3.

Creating a menu system is straightforward. First of all a standard macro that calls up a menu system is written. [menubranch] is the macro command to do this. [menubranch] requires a label reference of the menu system and in my example I have labelled it 'menu'. The full command is in cell V1 of my spreadsheet:

```
viz [menubranch menu]
```

As usual I have added a comment in W1 to indicate the macro purpose. Note that I have predefined columns V through to AB as width 20. Cell U1 is labelled '£m' so that when I have created the range names I can access the menu system by pressing <RIGHT AMIGA>-M.

The menu system itself starts at cell V3. Each menu option is defined in a single column of the spreadsheet.

The first line of a menu option defines the command to be displayed on the menu. In my example line 3 defines the commands so I have the following:

```
Cell  Command
 V3   Receipt
 W3   Withdrawal
 X3   Change _interest_ rate
 Y3   Save
 Z3   Period _end
AA3   Begin
AB3   Quit
```

There are two things to notice. First I have added two commands I have not yet defined. 'Save' is used to save the spreadsheet after revision and 'Quit' is used to quit the menu system. The latter will be necessary when you want to close down Analyse. It is also useful when a mistake is made as the menu system can be left and the error corrected manually. The menu system is then re-entered by calling macro-M. The other thing to notice is that the commands should not contain embedded space. Otherwise the user will not know where the commands start. As the first letter of the command can be used to execute it this is rather important. I have used an underscore to represent the embedded space to avoid this problem.

The second line of the menu option gives a description of the command. This description is displayed when the cursor is placed over the command when the menu system is in use. In the example above you cannot see the

descriptions as the printing has been truncated. They are as follows:

```
Cell  Description
 V4   Receipt into account
 W4   Withdrawal from account
 X4   Change interest rate
 Y4   Save the account details to disk
 Z4   Calculate total interest for the period
AA4   Reset account to start of new period
AB4   Exit menu system
```

The remaining lines of the menu option identify the commands to be performed when that option is chosen. These are written just like a macro and could reference other menus if required. In my example I simply call up the routines I have already created and then branch back to the menu system by executing [menubranch menu] again. The 'save' command simply calls up the [save] macro command before branching back. The 'quit' command calls the [quit] macro command and in this case no branching is necessary. The option completes execution after quitting the menu system.

All that remains now is to label the menu system by placing 'menu' in cell U3. To get Analyse to recognise the new macro (m) and the menu system we need to define some range names as follows:

```
/rnru1.u3<return>
```

After the above press <RIGHT AMIGA>-M and we have a menu system.

Now for the decoration on the cake. If we could get the menu system to start up automatically when the spreadsheet is loaded the user would not need to know anything about Analyse! Back in the 2nd article of this series I mentioned a special macro, the 0 macro. If a 0 macro is defined it will start automatically when the spreadsheet is loaded. What we do is to define the 0 macro the same as the M macro. This can be done by creating a range name of £0 and setting its range to V1:

```
/rnc0<return>v1<return>
```

You should not replace the £m label with £0 because £m will still be required to re-enter the menu system after manual editing.

We have now come to the end of the road as far as this spreadsheet example is concerned. Let us review what we have done with spreadsheets.

- We defined a layout of data very easily which corresponds in BASIC to defining input and output data and its associated formats.
- Having decided what keys to press to perform certain actions we could form them into macros should we wish to repeat the actions. This corresponds to BASIC subroutines.
- We could get input from the user during execution of a macro and place data in the spreadsheet. This corresponds to INPUT and PRINT in BASIC.
- We have used simple conditional statements corresponding to IF..THEN..ELSE of BASIC.
- We have created a user friendly interface by defining menus. BASIC would require a lot of programming to do that.
- We have created autostart programs.

If you have worked through this example with me you are now perhaps asking yourself the question I did some time ago. What use is BASIC. I can do it all with a spreadsheet yet it is so much easier. Of course it is a bit naive to assume BASIC is redundant. There are still situations where it is needed, usually for complicated number or string crunching. But how many of us need that. Indeed, is it necessary to write our whole program in BASIC when such work is needed. Spreadsheets handle data formatting much more easily than BASIC. I have now started to use spreadsheets for the data formatting and send the data to a BASIC program, (well COMAL actually), to do the complex work when this case has arisen. People are now using spreadsheets extensively and not realising they are programming because it is so simple. In fact I regard a spreadsheet such as Lotus as a higher level language than BASIC, a so-called fourth generation language.

Spreadsheets like Lotus are also well suited to the technique of fast prototyping. If a user wants an application an expert Lotus user can sit in front of a screen with the user and develop the application before the user's eyes. Various options can be tried quickly. Finally when the user is happy and the requirement is defined the expert Lotus user can sit quietly by himself and develop macros and user friendly menus to develop the application to one that the user can use without knowledge of Lotus.

Yes, Lotus and its clones are very powerful tools and I haven't yet mentioned how they can be used to create databases or for wordprocessing....

Library Lore

by Joe Griffin

The past couple of months have been a bit quiet on the Libraries front, not that we haven't been busy in other ways. Chris Wright has been into hospital and is still laid up, as I write this. I have been busy in quite a different way. Since the end of November, I've been out of work, having taken redundancy when my job moved to the USA and I didn't want to go with it. I start my new job tomorrow morning so by the time you read this I should be well entrenched.

During the past three months, I had all sorts of projects that I wanted to get done for the libraries. Few of them got done, but some are being worked on still.

Firstly, Peter Miles and I are trying to establish a method of transferring files between his Amiga (with 3.5 inch drives only) and my 128D (with a 1581 attached). I bought Big Blue Reader, so that we can go through MS-DOS. If anyone has successfully achieved this transfer, please let Pete or me know. [Access 64 lets you use any 15xx disk drive on an Amiga. I use it with a 1571 in the course of Newsletter makeup. - Ed]

Help wanted

It appears that there is quite a flood of PET's coming onto the market. Our local college has just sold all its PET's and 700's (at give-away prices). One problem has reared its ugly head. Several people are getting PET's with Computhink drives. I know very little about these, other than the fact that they ain't compatible with the 4040 or 8050. Is there anyone out there who has both Computhink and Commodore drives who would be willing to act as Copier for Computhink, or if they do not want to get that involved, who would be willing to copy one set of disks over, for me to pass on to a copier. Alternatively, would any of the owners of Computhink drives like to become the copier. I can (given enough time from my new job) dump all the disks onto tape and they can then be re-read into a PET and stored on C'think. [Now you know why I hope to find a member with both types of drive.] Anyone interested, please drop me (Joe) a line.

PC Library

Mr Fingers Arnot (of whom it has been said [what!? - Ed]) has been spending long hours slaving for the benefit of our members. No, not the newsletter, he

knocks that up in his tea breaks [lies..! - Ed]. Tim has been putting a lot of work into the PC Library, re-cataloguing, cleaning up the disks, acquiring latest copies, etc. This work is nearing completion and we hope to have a major announcement in the next Newsletter. For the first time we are hoping to have a specific set of library disks for each PC disk format - 360K, 720K and 1.2M. Please do not hassle your copiers yet; wait until we've had a chance to give them the disks.

C-64 Library

This month there are two disks from the prolific Mr Miller.

Disk No S1 is a Crossword Companion program, very useful for fanatics in this field.

A commercial quality program from John Tulley. An aid to crossword solving with files containing 18,000 words. In depth instructions for the crossword companion program.

Disk No U11 another utility disk with a very good Database program from James Mason (librarian).

Also included are another program from James Mason to help keep your telephone numbers in order; a BioPrint program; an autostart program; a program to help organise your credit cards; an upgrade to Disk Doctor (Version 4.0); a program to lock/unlock files; a label printing program; a useful program to rename/renumber/lock and unlock disks sequentially; a collection of subroutines in one prog; a very useful program for helping to correct hard and soft disk errors; an Inventory for disks and Zipcode disk packer/unpacker.

Amiga Library

by Pete Miles

A lot of stuff has come my way in the last 3 months, some of which is now in the Amiga Library as well as being available on the Fish disks. Before I elaborate on the new goodies, it may be an idea to tell newcomers what the library is all about.

Quite simply we collect public domain software, primarily from the USA and Canada and farm it out to you. However, the ICPUG Amiga Library as against the Fish and Amicus libraries is a composite of material from the Fish disks and Scope disks arranged to cover all one subject on any one disk. So for example PrintUtils_1 would cover utilities to be used to enhance the use of your printer. As of this article we have 73 disks in the Icpug Amiga Library. Ask your copier for the latest catalogue disk.

Modified disks

There is too much information to elaborate here so again, get the latest catalogue. This list is merely to tell you what to look at.

One exception is Documents_1. This includes a C tutorial by Brian Kernighan and a tutorial on Disk editors, specifically Sectorama by David Joiner. [Editors note: Leo Schwab's tutorial on multitasking in this issue was taken, with permission, from this disk.] Otherwise the modified disks include more up to date versions of programs and in some cases additions of new programs to the disk.

AmigaBasic 1 & 2; Audio1 & 3; Business 2; Comms 2 & 4; Demos 2; Documents_1; Dos_1; Fonts_3; PicsUtils_1; Utilities 1,2,3,8 & 10; Virus

New disks

Anims_5	Basketball player shooting ball and revolving pocket watch.
Anims_6	Ball and holder demo .
Backups_1	Copy progs for floppies and three hard disk backups.
Business_3	A stockbroking prog, accounts, a calendar & a database.
Business_4	A database called Rim. Not too friendly. Has masochist appeal.
DiskUtils_1	Includes Sectorama, a powerful disk editor and DTutorial the notes that go with it. DiskSalv, the best file retriever going. A prog to test the speed of your drives. A method to use the new Fast Filing System with floppies. A Dos2Dos clone and several others to do things to drives.
Fonts_5	Fonts suitable for titling and a font viewer.
LangUtils_1	A selection of C utilities, also a 6502 (dis)assembler and a CP/M emulator.
LangUtils_2	More C and assembler utilities.
Pics_9	All pictures by a bloke called Nagel.
PicsUtils_2	Loadsa stuff for manipulating pictures etc.
PicsUtils_3	Same again.
PrintUtils_1	Stuff for using with your printers, includes a disk label printing routine using DPaint.
Recreation_5	3 progs including a much updated Pacman, Rockslide where you have to choose a route through rocks and Bullrun where the Confederates fight the Yankees. Not bad seeing they are free.

More disks in the pipeline so keep an eye open in about 3 months.

New Fish disks now available up to 178.

Leonardo da Hatt...

Mike Hatt recently paid a brief visit to the Leonardo da Vinci Exhibition at the Hayward Gallery. For those keen on art, he reports that some of the famous sketches and others less known but of great interest were there, also hundreds of people moving at a snail's pace... There were sadly also a few exhibits that did seem to be makeweights.

For the more technologically minded, again there were various sketches and notebooks of great interest, and models of some of the more fascinating items, the flying machine having attracted a great deal of publicity. However, possibly the most striking exhibits were the really excellent computer graphics, well worth seeing. These sequences were directed by Dr. Philip Steadman, Director of the Centre for Configurational Studies at The Open University, and were produced by the IBM UK Scientific centre at Winchester.

This field is one in which the bigger Amigas should have great potential when similar results are desired without the use of such a high powered team of people and vast resources.

GEOS gems - 1

by Michael Pearson

Having been a proud ICPUG member for over three years now and having been immensely impressed at the quality of the articles in the Newsletter/Magazine, it has occasionally crossed my mind to write an article myself. However, that same quality has in fact been a delaying factor in putting "pen to keyboard", as I am no EXPERT as the vast majority of authors obviously are. I put myself in the category of "serious hobbyist" and family man who enjoys using the C64 for family enjoyment. If you find yourself in a similar category then read on....

In this, my first contribution to the Newsletter, may I make a plea to any ICPUG member who is also a GEOphile to write further articles, possibly under the title "GEOS GEMS". This would increase the number of articles of special interest to C64 hobbyists. The articles could include reviews of further GEOS products (what about a review of GEOpublish?) and books, impart tips and hints, explain how members are using GEOS in their hobby or work and answer other authors queries. Unfortunately I do not have a lot of regular spare time to regularly scribe articles (nor the expertise as I intimated earlier), but I hope I have sown the seed. Lets hope for germination shortly!

GEOhobby

Much enjoyment has been gained from GEOS by myself and family in particularly using GEOpaint. The following is a list of GEOpaint documents that we have created - I hope it will give other members a few basic ideas to develop :

- Certificates/Diplomas for family tournaments or for organisations such as youth clubs, scouts etc. Also for various social clubs at work.
- Proformas for writing letters to family and friends. This idea, headed with your own individual text, logos and graphics, seems to take the drudgery out of letter writing, especially if you have divided the page up into smaller portions. It seems to be less of an effort to write those "events" letters whilst on holiday and to persuade the family to write "thank you" letters after Christmas and birthdays.
- Designer Filofax pages! Why pay a lot of money for expensive sheets when you can design your own and get your exact requirements and individual design. Some coloured paper and a small guillotine completes an enjoyable designing session.

- As I use an MPS 803 printer "templates" for A4 size printouts, Filofax sized pages, A5 pages, etc need to be designed, with and without borders. All part of the fun of the hobby.
- Letterheads for your family and office use. The beauty about GEOpaint is that they can easily be changed if you move house or your children's tastes change as they grow up.
- Many other design applications..... let's hear of yours.

GEOqueries

1. Does anyone out there know of a better printer driver for the MPS 803 than the MPS 801 driver supplied with GEOS V1.3 ?
2. If I purchased a Star LC10, is there a printer driver availabe for it to be used with GEOS ?
3. Could the Star LC10 colour printer's colour facilities be utilised by GEOS ? (I told you I was no expert - but I expect many of our ICPUG members will know.)
4. Which importer/distributor of GEOS can answer queries like the above willingly? i.e. provide good user support / run a GEOS "helpdesk". Does anyone know?

GEOspecial Offer !

Up to the end of May only I am able to make the following offer to other member GEOphile hobbyists. In exchange for a 1541 5 1/4" inch disk with some of your GEOS creations on, whether grapics/clip art, page formats for an MPS 803 printer, GEOpaint files or any other GEOS creation that you think will give us ideas to extend our GEOS hobby I will send a disk with the following GEOS files (providing the usual ICPUG rules are followed as regards return packing and postage).

- GG/A4BORDER - A file of A4 format using an MPS 803 printer, with border that can be filled in with your chosen pattern. (The border can be erased if not required.)
- GG/FILOFAX - A file to print two Filofax sized pages with border and with positions to punch the holes. (A single hole punch bought quite cheaply from W H Smith's works very well.)
- GG/P/ALBUM - A photo album file containing several graphic designs for you to modify and improve.
- GG/HOLIDAY - A file to print out a sheet for your holiday letters.

- GG/DARTS - A 'Darts Champion' certificate.
- GG/POUND - A font with a POUND sign instead of a dollar sign.

Do remember that the above files which print out pages are formulated for the MPS 803 printer using the MPS 801 printer driver.
I do hope that some of the above files will be of interest/use to some fellow ICPUG members.

In addition to the disk I will also include a printout of review references of GEOS products from the popular magazines of the last few years. This may encourage you to dust off those piles of magazines in the attic and re-read the reviews - you may even agree with some of them !

GEOsummary

I have written this (non-technical) article as a way of putting something back into ICPUG, to keep the C64 alive in the Newsletter, to encourage other novices to turn their hand to writing 'hobby' articles and as a plea to other GEOS users to take on the challenge of writing articles so that a (semi)regular GEOS column appears. I do hope that my first attempt at ICPUG journalism has not had the REVERSE effect !....

Michael D. Pearson,
31 Saxon Close, Stratford Upon Avon, Warwickshire. CV37 7DX.

10th Anniversary of I(C)PUG - Part 3

by Brian Grainger

Members new to ICPUG this year will not realise that we are celebrating our 10th year of existence. In issues 5 and 6 of the newsletter Vol.10. I traced our history from the early beginnings to the sunset of the Commodore PET. Now a new chapter unfolds.

1982 was the year of the mass market computer. Everyone went mad as the VIC20 became the first computer to sell over a million and Commodore ran out of stock just before Christmas. As mentioned last time the Commodore 64 had made a brief appearance before being promptly withdrawn by Commodore because of a bug.

Not much happened in the first couple of months of 1983. Ron Geere made the first attempt to introduce the computer language Forth to the ICPUG members. Superspell, as a companion to PET Superscript, was introduced. Then came March 1983. Volume 5 Number 2 of the ICPUG Newsletter was a landmark issue. It consisted of 152 pages, our biggest issue ever, which has still not been surpassed, although we tend to put more on the page these days. By this time the 64 was being sold but little information was available on how to use its facilities. This issue of the newsletter provided the first information with articles by myself on the various graphic and text modes and how to use them. The Programmers Reference Guide for the machine expanded on this detail later, but it was seen first within ICPUG. Mike Todd started a regular 64 column as well as producing a definitive ROM listing of the 64 with cross references to the PET and VIC equivalents. Finally, Jim Butterfield made his contribution by instructing us all on how to change the character set on the 64. This issue became a best seller with requests from all over. It certainly helped to foster the image of ICPUG as a source of technical information second to none.

Mid year saw the Reverse Assembler, that was part of club software, enhanced to cover references to 64 ROM locations as well as the original PET locations. This enabled easy transfer of PET machine code programs to the 64. I used this program to produce the first version of COMAL for the 64 from that available for the PET. In the process I added some enhancements such as pause control on directory listing. This version, known as 0.64, lasted for quite some time, even after the more definitive 0.14 version. Once again another first for ICPUG.

The Club Software Review column was now becoming a regular feature which helped to introduce the software library material to the membership. It has since

been dropped but I think it might be useful to revive it in order to have some in depth reviews of the more useful Amiga software in the library. How about it you budding authors? At this time the 40 column PETs were getting a new lease of life with a product to convert their screens to 80 columns as well as adding the additional keyboard facilities of the 8032 PET. Commodore introduced a new version of the 64. The SX64 was a luggable 64, 5-1/2" colour screen and 1541 disk drive all in one package. The main criticism was of the small screen but this was a very useful machine which did not become very popular. Until recently I was still using one on my desk at work.

In the July newsletter, another fat issue, I dared suggest that Commodore had produced a manual that was good! This was the 64 Programmers Reference Guide. Without doubt it was the best manual they had produced to date. It still is I guess, although the manual with the Amiga 1.3 Enhancer pack comes close.

The Commodore Show of 1983 was a pretty average affair although Jim Butterfield was giving his, by now annual, entertaining talk. On the run up to the ICPUG AGM I managed to ruffle a few feathers by complaining about the lack of effort by ICPUG in encouraging communications via Micronet. As is usual when you complain I got the job of sorting out the problem and became the ICPUG Micronet man at the AGM. At that AGM the subs were raised to £10 and we appointed a new newsletter Editor. Ron Geere was about to bow out having steered us from our beginnings of a few pages per issue to the 100 page plus issues of that year. We owe a great deal to Ron in getting our newsletter off the ground.

The December 83 newsletter saw the start of Hugh De Glanville's reign and with it came a comparison of two rival BASIC expansion cartridges for the 64, Simon's BASIC and BC BASIC. Both covered similar ground and each had their devotees although with COMAL you did not need BASIC expansion. It was all there!

The start of '84 saw Hugh De Glanville putting his personal touch and facilities to the newsletter when there was a radical improvement in the typeface. It allowed more words on the page and looked better quality. ICPUG had got involved with 'electronic' editing on Prestel-Micronet. Commodore had released the prototypes of a cheap modem which allowed access to Prestel but the ultimate aim was to access a network being developed by Commodore called Compunet. Communication networks were the in-thing and Network News made its appearance in the newsletter.

Another interesting advance around this time was something called Basicode. This can be best described as a common dialect of BASIC which could be used on a number of different micros, including the PET and 64. More

interestingly the programs were being sent out on radio both in Holland and on the BBC. Consequently a common data encoding format had been defined so that different machines could understand the signal. Mike Todd told us all about this back in '84. Sadly it never really caught on although BASICODE programs are still being transmitted from Holland as Dennis Gortmans reported in Vol.10 No.6.

In March an upheaval at Commodore was reported by ICPUGSE. Jack Trameil had resigned and been replaced by a Marshall Smith (remember him?). The effects on Commodore were to be felt for a long time to come. Superbase for the 64 had appeared and reviews and praise were beginning to appear in the National and SE newsletters.

Around mid year programmers were now extending way beyond the BASIC level and information on how to get at the 64 Kernal facilities was being requested. Mike Todd started off a series at this time which Ian Cassidy has since extended to provide the relevant information. Mid-year also saw the introduction of COMAL 0.14 for the 64 which provided an easy way to program high resolution graphics and sprites amongst other things.

The Commodore Show of 1984 saw a new job for ICPUG. Apart from our stand we also organised the seminars. This show was consumer orientated with Commodore showing off their new Commodore 16 and Plus/4 machines. The business community seemed to have been deserted by Commodore at this time although they were working on a PC compatible and something called the 'ZEE machine'. Neither progressed further than prototype versions. This show also introduced another ICPUG innovation. We had a get together for regional organisers after the show on the Saturday.

The July newsletter saw the 1541 disk drive getting the treatment in Mike Todd's disk file. A RAM Usage Table was published for the first time anywhere. ICPUG was starting to experiment with the Compunet Network as well as Prestel at this stage. It really was still in an experimental stage but ICPUG helped in the testing stage to show up the problems.

The September newsletter saw the start of what has now become a firm favourite. Superbase Corner started life with Hugh De Glanville putting together the hints and tips suggested by users.

1985 saw the year start with a report from the US Consumer Electronics show. Commodore had demonstrated a new computer, the Commodore 128, and a companion disk drive the 1571. Really three computers in one, a 64, a CP/M machine and native 128, the new computer was an innovation from Commodore. The first newsletter of the year also had an innovation. For the first time an index to the previous year's articles appeared. No more searching to find that elusive piece of information you knew you had read but could not

remember where it was.

Mid year saw another change for ICPUG. After initial interest Commodore decided that they were not going ahead in selling the COMAL cartridge for the 64. In order to serve the members who were keen to obtain the product ICPUG decided to it instead. This was the first commercial venture we had been involved with. Nevertheless, the aim was to stick to our rules of non-profit making. The price of the cartridge was set at a level sufficient to cover our costs but no more. We were, of course, promoting it at that year's Commodore show, at which we also presented the 'Question and Answer' seminars with Jim Butterfield in attendance. Commodore introduced the 128 to the UK audience along with their first PC clone. It is rather amusing to read Mike Todd's review of the show now. He felt interest in the PC and clones was diminishing and Commodore had hit the market 2 years too late. Well with the benefit of hindsight we can see that he was wrong. Although the first PC clone from Commodore was not a great success their latest offerings are, particularly in Germany, where Commodore is the top selling clone producer. Commodore also demo'ed a couple of prototype machines. Gone was the ZEE machine of the previous year. In its place came the 900, a multi-tasking machine and the Amiga, a graphics orientated machine. It did not take long, (till the September newsletter), before Mike Todd had given some brief details on this super new Amiga machine.

At the 1985 ICPUG AGM we had to say good bye to Mick Ryan as Chairman. His new job abroad meant that he could no longer be our leader. In recognition of his services to the group he was awarded life membership. Mike Todd took over as Chairman. Another important feature of that year was the recognition that ICPUG had changed from its origins. We now had assets in equipment and we had small commercial ventures. This meant we needed a change in constitution and on the advice of Alistair Kelman, who was now our legal representative, the AGM authorised the committee to draw up a revised draft constitution and investigate becoming a co-operative, the first computer user group to do so.

1985 ended with Commodore releasing the Amiga in the USA and the COMAL SIG of ICPUG well developed. The cartridge was selling and well liked. A special COMAL software library had been set up and a number of disks from various sources, including ICPUG members, were available. Also, after all the teething troubles with Compunet I had finally endorsed it as a useful system.

1986 started badly for Commodore, in the UK at least. The manufacturing plant which had been set up at Corby was to close. Apart from that, Commodore would not market software or provide dealer support either. ICPUG was to become the sole support it would seem. A sure sign that the comms

revolution had taken hold was that MiKe Todd started a series in the March newsletter explaining the nitty gritty of comms. How signals are sent and what 1200/1200 really means were the sort of questions answered. It was at this time also that ICPUG decided to set up a software library for the PC compatible machines, to join those for the PET, VIC, 64 and 128.

The Commodore Show came early in 1986, in May. This was a landmark point in computing and ICPUG. The star of the show was the new Amiga 1000. The machine was received with rave reviews although the price, at over £1500, was not. At the show ICPUG held an EGM. Alistair Kelman had come up with the proposals to turn ICPUG into a marketing co-operative. The meeting accepted the proposals and then tucked into some free snacks. The first of ICPUG's show 'get-togethers' for the ordinary members.

The May newsletter, not surprisingly, covered the Amiga extensively. In addition, Superbase Corner had been taken over by Jim Kennedy and renamed Super* Corner so that it could cover Superscript as well. In July the newsletter attracted a further corner covering Pascal. The attempts at encouraging the use of Forth seem to have died by this time so it was interesting to see an attempt with another language.

The ICPUG AGM in September finally endorsed the change to our formal title of ICPUL, Independent Commodore Products Users Limited. This was necessary in our new role as a co-operative although we can still refer to ourselves as ICPUG. The Chairmanship of ICPUG was taken up by Jim Kennedy at this time and we expanded our software libraries to include the Plus4/C16 and the Amiga. The latter was now well entrenched into the ICPUG stable of items to cover. Superbase had appeared for the Amiga and this computer was clearly becoming the way of the future.

This seems an appropriate time to end the journey through ICPUG's history. We had moved from 13 members at our first gathering to thousands. From IPUG to ICPUL. From support of 1 machine to the setting up of 7 software libraries. Where does ICPUG go from here? The future of Commodore seems assured with the Amiga. The membership numbers of ICPUG rise each year. This in itself creates a difficulty. ICPUG depends on its volunteer helpers to service its members. As the number of members grow the work on the volunteers increases. However, the thing that has made ICPUG unique from other user groups such as Beebug, the PC User Group, or Amiga User Group is that it is NOT a commercial enterprise. The needs of the members are not compromised by commercial pressures. Personally, I have always preferred the hacker, non commercial environment. I believe more is achieved with enthusiasm as the driver. If I were to single out those whose enthusiasm has done most to shape ICPUG into what it is today I would suggest:

Mick Ryan - for giving us professionalism and credibility
Ron Geere - for the early development, from scratch, of our internationally recognised newsletter.
Mike Todd - for his superior technical knowledge and ability to convey it to lesser mortals.

The future of ICPUG rests, as it always has, with its membership. You alone decide its direction.

Which? Hatt

Just before putting head to disk for this Newsletter's Hatter items, Mike made the pilgrimage to the NEC for the Which Computer? Show. Hatter's advice to those going in future - DON'T go by car, or if you must, DON'T use motorways. He made both mistakes going there and arrived knackered at mid day. Parking is horrendous; there are free coaches to take you to the halls but such long queues for the coaches back that it's easier to walk (well, limp) back to your car. The show is HUGE - Mike did just manage to get round it all and picked up quite a bit of 'bumf' especially on printers.

Commodore had a good stand. Mike comments that although the Bickerstaffs (who needless to say arrived fresh and happy courtesy of British Rail!) tell him they had a good look at the new Amiga 2500, he was diverted from attempting to penetrate the scrum round it when he saw a PC-1 with the add-on rear box. Having quizzed one of the dealer people for some further information, it appears that the three-slot box will be £99. The six slot version now seems unlikely to appear, owing to "design or production problems".

Final comment - the chaps from dealers Addtech are a very good, helpful bunch, but it's a little worrying that no-one's ever told them anything about ICPUG!

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Keymaps & KeyBird

by stuart (Lower Case Deliberate) johnstone

If you've tried the SetMap program in the System drawer and wondered 'What on earth is this all about?', read on.

Like all computers, the action of each and every key is defined each time the power is turned on. Unlike some, the Amiga keyboard can easily be defined to be however you want it. Tucked away in the directory devs:keymaps are a clutch of keymaps. (Those awfully nice Commodore people haven't actually chosen a collective noun for keymaps, but I'm sure they'll be happy with clutch.) These are maps of how the keys are to be defined. There is, of course, a default keymap, in ROM (or on the Kickstart disk on the A1000), which the Amiga will use unless instructed otherwise. This map is OK but the Amiga is capable of much, much more and keymaps can give you any thing from defined function keys to a completely rearranged keyboard.

Why, you may ask, should I want to modify the keys? How about having your most used CLI commands as a single keystroke, including the carriage return? The possibilities, if not endless, are considerable.

The Amiga keymap can be set from the Workbench (get the Info panel for the program and type "keymap=[keymap]!) or through the CLI, using the SetMap command (SetMap [keymap]). More easily still, it can be set as the disk is booted by including a "SetMap [keymap]" in the startup-sequence file in the s: directory. The clutch of keymaps on the original Workbench disk includes keymaps for most north American and European keyboard arrangements. (Try usa2 for some real panic - a Dvorak keyboard, no less, with most of the keys anywhere but where you'd expect them.) The good news is you're not limited to these and there are programs available which allows you to hatch your own.

One such program is KeyBird, available on AMICUS disk 25, and probably elsewhere. Michael Ingrassia, the author of KeyBird, calls it a keyboard enhancer. More simply, it makes keymaps. It runs in AmigaBasic, which, as the author says, makes it a little clunky in use, and it certainly doesn't have all the bugs ironed out, but the keymaps it produces are worth a little effort.

Getting ready:

Keybird was obviously written some time ago and the keyboard layout it displays is for a standard A1000. However, it works just as well with an A500. What it doesn't do is allow you to modify the extra keys on this later keyboard, nor the two extra keys on the converted A1000 French keyboard some of us have.

I'm no programmer but it ought to be possible to sort this out - any offers?

I have found the easiest way to use KeyBird is to make it its own Workbench disk (nest?). Discard the Utilities and Demos, add Basic and the contents of the KeyBird Drawer, stir well, and you're almost ready to go.

I say almost because there are one or two things to do before starting up. The program appears to have been written for a machine with expanded memory and to be run in an interlaced screen. If you have 1meg or more of memory all is OK but for a 512k system some small modifications are needed. It's a big program anyway and what's left of 512k after the system and a second disk drive have had their share isn't enough to run it as it comes. The necessary modifications are very straightforward.

Change the second and third lines of KeybirdSupportFile from:

```
Screen 1,640,400,3,2
Window "KeybirdSupportFile",(0,8)-(631,186),16,1
```

to:

```
Screen 1,640,200,3,2
Window "KeybirdSupportFile",(0,8)-(631,186),12,1
```

The Screen line is the pixel size of the screen and we are reducing it to the 200 we need for the non-interlaced screen. The 16 in the Window line allows the window contents to be redisplayed if temporarily covered by another window; this also takes memory and we are modifying it to only allow the window to be opened/closed or moved. Since the window is effectively a full screen this is no great problem. One final caution, steer clear of the About on the Project menu; because of the modification to Window the window won't be redrawn. If you do want to read it, list the program.

It is also necessary to clear some memory ready for the main bit of the program so next modify the startup program KeyBird to read:

```
CLEAR,95000&,5000
CHAIN "KeyBirdSupportFile"
```

Finally, transfer the sample keymaps to the devs:keymaps directory using the CLI (or a directory utility). OK, now run the program.

The manual (five A4 pages when printed out) is clear and easy to understand so I'll just outline what it can do.

KeyBird can be used to completely define a keymap from scratch. This,

however, is a task for the bold. A better bet is to improve an existing keymap and a good place to start would be the default keymap (the actual name of which, under OS 1.2, is usa). Since you can't get directly at this in the ROM the author has transcribed a copy. Drop the Project menu and load thisisusa. Now, as promised, you can make your own personalised keymap!

The options:

The straight Keymap. This is the really useful bit. Almost every key can be defined to give a different character, or string of characters (up to 32), including carriage returns. Each key can be qualified by the [shift] [alt] or [ctrl] keys, or by any combination of these. An example of this is the £ sign which in the default keymap is produced by the [alt]+l combination - there are any number of these, as you no doubt have found, and all are totally unconnected with the letters and numbers on the keyboard. There is a further qualifier called [downup]. This is pretty weird and allows you to assign a different code from the key-depress (usual case) to the key-release. Sounds complicated doesn't it? There is a sample keymap called color to illustrate how this works.

Capsable keys. On the regular keymaps only the letters are affected by the [caps lock] key, the rest behave as usual. Any key can be capsable if you want it to be. (I can't imagine why you should, though.)

Repeatable keys. Not all of the keys need to repeat if held down, sometimes this is a nuisance. This option allows you to choose.

Deadkeys and Modifiable keys. Using an example from the default keymap again, [alt]+f followed by e gives an é. The [alt]+f combination is a Deadkey definition and the e is a Modifiable key. (Trying [alt]+f followed by, say, p gives only a p because p isn't modifiable.) This is how most of the accented letters in the default keymap are used. If you want to change them, now's your chance.

All this is easy to use and needs no great skill - even I managed it! It is even possible to include a Setmap command as one or more of the key definitions thus allowing you, in a CLI environment, to swap keymaps at will. One other useful bonus is the keymap can be overridden by another application but will still be available when you leave that application. For instance, I am currently using Scribble!, which assigns various commands to the function keys and other key combinations, but when I call a CLI window with PopCLI the keys return to my definitions. I can't guarantee this with every program, but I've had no problems so far.

Finally, my thanks to Gary Brittain, without whom all of the important techie bits would not exist, and to Mark Stanton for test driving Keybird on an A500.

What day is it?

A 1-2-3 spreadsheet that tells the day of the week

by Richard G Hunt

Brian Grainger has in recent issues exposed some of the useful things one can do with a good spreadsheet program. I have been using LOTUS 1-2-3 since 1984, and therefore feel I am well enough at home with it to tell you perhaps the least useful thing there is to know about it. It has to do with dates, and those of you who have been members of ICPUGSE will know my interest in dates and Zeller's Congruence. Also the spreadsheet cited was first written for version 1A of 1-2-3. As version 2.01 has replaced 1A with many many improvements, actually the need to do things the way this spreadsheet does them has also changed. But I am not one to let that stop me from a little bit of fun! Now read on...

To the busy executive, dates are important. There are many PC products that display the date and/or time in a small window somewhere on the screen. There are fewer products that permit the user to manipulate the dates arithmetically, or otherwise treat them as data. LOTUS 1-2-3 is one of them. The spreadsheet below is an example of how one of the date functions may be used. It happens also to use the Qdatabase capability of 1-2-3 and is wrapped up in a macro, invoked on loading, that asks the title question - at least in this spreadsheet - "What day is it?".

The reason that this particular question is asked (and answered) is that practically all packages, including 1-2-3, will display a numeric date, like 28 JUN 88. None of them tells what day of the week it is. Now, as all upwardly mobile persons are fully aware, that is something we like to know.

The spreadsheet may be incorporated into any larger spreadsheet , its working parts removed to some inoffensive corner. The spreadsheet makes use of an algorithm known as Zeller's Congruence. The Rev. Chr. Zeller devised a method of determining the day on which January 1 falls in any year between 1582 and 4902, and by derivation what date Easter falls on. The latter may be left safely to the makers of pocket diaries, but the former is easy to implement. It is but a short step further to derive the day of the week of any date within the year boundaries, returned as a number 0 - 6. LOTUS 1-2-3 will handle of course only the years between 1900 and 2099 inclusive. That is sufficient for the average user.

The algorithm may be stated as:

```
A = INT(YEAR-1) / 100
B = YEAR - 1 - 100 * A
D = 799 + B + INT(B/4) + INT(A/4) - 2 * A
D = D MOD 7
```

D is returned as a number 0 - 6 representing Sunday - Saturday, being the day of the week of January 1 of the year in question. By derivation therefore:

```
[D + (COUNT OF DAYS IN YEAR TO DATE - 1)] MOD 7
```

Is the day number of any date in the year.

In the spreadsheet the algorithm is expressed as text and of course may be omitted. Having returned a number 0 - 6 for the day of the week of the chosen date, a data QUERY extracts from the table of numbers and day names the correct day name of the weekday for the date in question. The macro is written by way of a user menu (with a unique option) and so is self perpetuating. On pressing <return> the date in the date cell should be edited (using F2/EDIT) to display the desired date. pressing <return> enters the date and a second press continues with the macro.

For those with a penchant for investigating dates, beware; there is apparently a BUG in the LOTUS 1-2-3 dates table (or whatever is used to validate dates). For that reason the three lines relating to LEAP YEARS and February 29 have been included. As we approach the turn of the century, more and more people are asking "Is the year 2000 a leap year?" It is, and the algorithm that says so states that:

```
February has 29 days
        if the year is divisible by 4
            except when it is divisible by 100
        unless it is divisible by 400.
```

The calculation of a true leap day is contained in three formulas:

```
FLAG 1. LEAP YEAR FLAG:
        @MOD($YEAR,4)=0
FLAG 2. CENTURY LEAP YEAR FLAG:
        @MOD($YEAR,100=0#AND#@MOD($YEAR,400)=0
FLAG 3. FEBRUARY HAS 29 DAYS, TRUE=1:
```



```
@IF(FLAG2,@TRUE,@IF(FLAG1#AND#(@MOD($YEAR,100))
    ,(TRUE,@FALSE))
```

The formulas work with Boolean logic. Flag 1 is true if YEAR is divisible by 4. The @MOD() function returns 0 only when the result (the remainder) is exactly divisible by 4. A positive result is regarded as Boolean true. A false flag has to be made true and a true flag (when the remainder is greater than 0) made false, and this is done by the expression = 0. Flag 1 is true when the year is divisible by 4. Flag 2 is true only when the year is divisible by 400. Flag 3 selects the true state of flag 2 else flag 1 unless YEAR is divisible by 100. The last bit is difficult to see because 1-2-3 returns a positive remainder of the @MOD() function for any non century year, which logically ANDs with a true flag 1 to produce a true flag 3 only when it is a leap year.

So year 2000 is a leap year (is divisible by 400), but 1900 was not a leap year. So what happened at LOTUS?

If you enter the formula @DATE(89,2,29), 1-2-3 returns ERR correctly. Also correctly, it returns 29-FEB for 1988 and 2000 &c. However the formula @DATE(0,2,29) returns 29-FEB-00 (year 00 being the 1-2-3 base year, 1900). Everything stated about the determination of leap years, which has been published elsewhere numerous times, is persuasive of 29 February 1900 having not happened! Thus it appears that 1900 as far as 1-2-3 is concerned had an extra day, yet this apparent error is not observable in later years. By using this spreadsheet it can be determined that 31 December 1900 and 1 January 1901 fell on the same day, a Tuesday (according to LOTUS)! Therefore only 1-2-3 dates between 1 March 1900 and 31 December 1900 are wrong by one day.

I'll bet you never knew that!
I'll bet you never need to know that, as well!

	A	B	C	D	E	F	G	H
1			ZELLERS CONGRUENCE					
2		DATE		22-JUN-88				DAY OF WEEK
3		YEAR	= YEAR IN DATE +1900	1988			0	SUNDAY
4		A	= INT((YEAR-1)/100)	19			1	MONDAY
5		B	= YEAR-1-100*A	87			2	TUESDAY
6		DAY2	= 799+B+INT(B/4)+INT(A/4)-2*A	873			3	WEDNESDAY
7		DAY1	= DAY2 MOD 7	5	= JAN 1		4	THURSDAY
8		DAYS	= (DAYS IN YEAR TO COUNT)	173			5	FRIDAY
9		DAYWEEK	= (DAYS+DAY1) MOD 7	3	= DAY OF WEEK		6	SATURDAY
10								

```
11

12   G    /riDATE~                    DAY OF WEEK        DAY OF WEEK
13        [goto] CRITERION~             3                 WEDNESDAY
14        +DAYWEEK~
15        [edit][calc]                LEAP  YEAR  BOOLEAN  FLAG        1
16        [query]                     CENTURY LEAP YEAR FLAG           0
17        [goto]DATE~ [left][up]      FEBRUARY HAS 29 DAYS, TRUE=1     1
18        [goto]OUTPUT
19        /xmMENU
20
21
22     MENU    WHAT DAY IS IT?
23
24        /xg G~
25
26        Z    /xmMENU~
27
28
29 RANGE NAMES AND REFERENCES          FORMULAE
30 A          D4                       @INT(($YEAR-1)/100)
31 B          D5                       +$YEAR-1-100*A
32 CRITERION D13
33 DATE       D2
34 DAY        G2
35 DAY1       D7                       @MOD(DAY2,7)
36 DAY2       D6                       799+B+@INT(B/4)+@INT(A/4)-2*A
37 DAYS       D8                       +DATE-(@DATE(@YEAR($DATE),1,1))
38 DAYWEEK    D9                       @MOD((DAYS+DAY1,7)
39 FLAG1      H15
40 FLAG2      H16
41 MENU       C22
42 OUTPUT     H13
43 TABLE      G3..H9
44 YEAR       D3                       @YEAR($DATE)+1900
45 ZELLER     D2..I13
46  0         C26
47  G         C12
48  Z         C26
< END OF LIST >
```


PET Prattle - 7

by Joe Griffin

Before I get underway, let me reiterate the advice I gave in my first 'Pet Prattle' Column. The 'bible' for PET users is:

'Programming the PET/CBM' by Raeto West, published by Level Ltd.
It is available from: Biblios Publishers Distribution Ltd.,
Star Road,
Partridge Green,
HORSHAM,
West Sussex.
RH13 8LD

The most recent price I have is £18.90 + £1.00 p&p - expensive but worth it!

Disk Drives

Shortly after the development of the PET, Chuck Peddle's design team evolved the first Commodore disk drive. There were a number of fairly radical departures from established practice, which have remained with us through the Commodore range up to the latest drives. Most disk drives used Modified Frequency Modulation (MFM) for the actual recording method. The number of sectors/track was constant throughout the disk and most importantly the Disk Operating System (DOS) was usually stored in the computer's RAM. By using an alternative recording method (known as Group Code Recording, GCR) and by varying the number of sectors/track it was possible to store larger amounts of data on the disks. Commodore also produced the intelligent disk-drive. Unlike the 'dumb' drives used in old fashioned computers (like the Apple and Amiga), the PET drives contained their own microprocessor which accessed a built in DOS, contained in ROM chips. This approach has the major advantage that there is no loss of computer memory to the DOS but does have the drawback that the DOS cannot be modified by the user.

An alternative drive available at the same time was the Computhink drive which used a ROM chip in the PET to hold its DOS. (Rae West devotes some space to these drives.)

The first drive released to PET users was the 2040, a twin single sided drive, holding about 170 kbytes/disk. There were a number of teething problems with this drive, including a fairly severe overheating problem. The drive was revised

slightly and re-issued as the 3040, with ventilation slots cut into the case. Although there have been a number of changes to CBM drives over the years, much of the disk structure of those early 2040's is still with us. This has the great advantage that those of us who want to hack about on the disk can apply similar principles to almost any Commodore disk. For details of the structure of the PET drives, I refer you to Chapter 6 of Rae West's book.

As an example, the 2040 used one sector for the disk header, containing the disk name and ID code. The Block Availability Map (BAM) which tells which sectors on the disk are free and which are in use was also held in that first sector. The next sector was the first block of the directory, holding 8 entries at 32 bytes/entry. Although some of the later drives have needed more blocks for the BAM (the 8250 uses 4), the same principles apply. On those early drives, the user had a choice of three file types - Program (PRG), Sequential (SEQ) or User (USR). DOS used the first two bytes in each sector of the file to form a pointer to the next sector, establishing a file chain. Direct access files were possible but BAM management was in the hands of the user, it was not supported by DOS. One of the other problems with these drives is that the disk must be initialised before it can be used. If a DOS wedge or BASIC-Aid utility is in use, the user can send the command 'I0' to the drive, if no such utility is in place, then the user must issue the command:

```
OPEN 15,8,15,"I0" :CLOSE 15
```

When the 4040 drive appeared, it was fitted with DOS 2, which not only gave auto-initialisation of disks, but also allowed Relative (REL) files. These allow the user to maintain direct access files from within DOS. There was also a small change to the number of blocks on the disk. On the 2040 or 3040 a freshly formatted disk had 670 blocks free. For the 4040 this reduced to 664 blocks free.

This drive used the same track for the directory, placing this halfway across the disk (track 18 of 35) and positioning files on either side, gradually working out to the edge tracks. Commodore stayed with this idea; the 77 track 8050 uses track 39 for the header and directory (and two blocks on 38 for the BAM) and their 1581 3.5" drive for the 128 (an 80 track device) puts the header, BAM and directory on track 40.

The disk can be very easily modified, down at the structure level, by using a good disk editor. Being an intelligent drive, it does no more work than is absolutely necessary (in fact the drive in my 128D doesn't even do that much, see elsewhere in this issue for the sorry tale!) When a file is deleted from the directory, all that is done is the file type in the directory entry is marked as

deleted and the blocks used by the file are marked as unused in the BAM. The actual file blocks are not touched. Thus, provided nothing more has been written to disk, by restoring the file type byte and validating the disk, the file could be unscratched. One disadvantage of the way CBM drives always place files as near the centre as possible is that a scratched file is likely to be overwritten almost immediately. (By contrast, on the IBM hard disks, new files are always placed further along on the disk and free space is not reused until it is needed.)

Similarly, if a used disk is re-headered, using the short form of the header command (ie: without the disk ID), then all that happens is the header block, BAM and first directory block are rewritten; the actual data blocks are not modified. Although it is not all that easy to do, it is possible (I've done it) to bypass the first directory block and re-validate the disk, which restores all but the first 8 files. If the blocks which the BAM says are unused are then examined, file chains can be found and these will include the eight missing files. The program 'FILE RECOVERY.4' on utilities disk U1 can be used to locate and print these file chains.

Every time the disk contents are modified in any way, the directory track is changed. Thus it is not surprising that this is often the first track to fail. Usually it is the first sector of the track which becomes unreadable and without this sector, the disk cannot be initialised or read. On two or three occasions now I have been given disks with this problem, where the user does not have a backup. By a certain amount of fiddling, it has been possible to copy the rest of the disk and recreate the directory, using the file recovery program. If you want to learn about the structure of disks, I can recommend this as a learning course. I would however recommend that you try it on a backup disk, not a master!

For this type of work a good disk editor program is essential. I have used both 'Disk Revealed' and Precision's 'Super Discdoc' which I find slightly easier to use.

Reading Programs as data files

One of the advantages of the disk drives is that although the program files are stored in binary image form, they can be read byte by byte, just like a normal sequential data file. With a suitable knowledge of the way BASIC tokenises the keywords, the program can be translated back to a readable form. This has been used in a number of programs. Notably programs such as 'LISTER', 'MERGER', 'COMPACTOR' and 'CROSS-REF' on utilities disk U2 allow the user to manipulate program files.

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Paging Prestel

by David Martin (01 999 7086)

First of all apologies for the lack of updates on the ICPUG database during January, this was due to work commitments. ICPUG appears on a number of Viewdata databases, on Prestel we have frames within ClubSpot. We can also be found on a couple of local Viewdata systems, PAZAZ, Dunfermline, Scotland and Diamond Viewdata, Watford London, all three operate 24 Hours a day.

Prestel is a national Viewdata system run by Dialcom UK, (part of B.T.) ICPUG has approximately 150 frames in the ClubSpot area. The ICPUG database is split into two parts. The first consists of information about ICPUG, a who's who, details of the newsletters, a list of ICPUG Regional Groups with contact names plus times and venues of meetings. The second part is a more general area which contains news of ICPUG and Commodore related subjects, events taking place at regional groups or that may be of interest, features an area given over to helpful advice and computer related articles. Finally there is the letters section for mailboxes from members and non-members.

Although Prestel is the main Viewdata databse for ICPUG our frames can also be found on Diamond Viewdata. Diamond is run by Y2 of Watford, who wrote the Ruby-View software for the Amiga and supplied me with Ruby-Tel the software I use to edit the ICPUG frames. On Diamond there are a couple of chatlines; Amiga, C64, music and joke sections. There are also a limited number of telesoftware programs for the Amiga to download. There is also a business services directory, a sort of on-line Yellow Pages.

Another database to find ICPUG is PAZAZ in Scotland. Run by Mick Graham PAZAZ is well worth a visit with a number of sub-editors contributing to the database. Subjects covered are the usual computing, through to home wine making. Fife Line forms part of the database, this gives general and tourist information about the Fife area of Scotland. Telesoftware has recently been introduced to the database, logon to PAZAZ for more information.

Both Diamond and PAZAZ run on Amiga 2000's with hard disks operating under Y2's Ruby-Tel Viewdata host software. ICPUG can be located on all three systems with the keyword ICPUG. I can be mailboxed on Prestel systel 019997086, there are response frames on Diamond and PAZAZ if you wish to talkback to me. The number to dial for Diamond is (0923) 228558 and the number for PAZAZ is (0383) 620259.

As predicted last year, Micronet have opened a gateway for the downloading of telesoftware. The gateway runs on an Amiga fitted with a hard disk, this houses all the free software available to Commodore, ST, Amstrad, Beeb

and Spectrum computer users of Micronet. There were a few teething problems when the gateway was first opened, these have been sorted out and it is now safe to enter the gateway.

The Amiga databases within Micronet are currently undergoing changes, Solely CBM edited by Andy Waller has moved to page 800200. It is to be renamed All Things Commodore, Solely 64 will remain as part of the new area. Presently there is an official combined Amiga/ST area within Micronet, my understanding is that it will be split, with the Amiga section moving under All Things Commodore.

1541 Write Protect modifications. A Project.

by David Miller, C64 Library Organiser.

Some time ago Joe Quintin (C64 Librarian) was helping me with trying to collate programs from a foreign source. On receipt of these discs from Joe I noted that the programs were on both sides of the discs, but they were not notched on the second side. So I scratched my head for a few moments, all I got was splinters.

How did he do that I said to myself (I do that quite a lot, talk to myself I mean). So I phoned Joe who came up with the solution of a hardware modification and an assurance that it did work.

Off I trundled to my local component shop and purchased the required parts for about £1 (only about £3 - £4 cheaper than a notcher) and safer. Back home and a few tools assembled - A phillips screwdriver, soldering iron, small drill, and a pair of cutters plus a small circuit diagram from Joe. I dismantled the drive and fitted the parts, checked and tested it and believe me it worked 100%. With the switch off the drive works as usual but with it on works without notching.

Method

First insert the head protecting card into the drive and remove all outside connections, turn the drive upside down and remove the four screws. Carefully holding the drive together, turn it the right way up and lift the top off. In front of you to the right you will see the drive assembly (front of drive) and the P.C.B. (circuit board), on the board nearest to you are a group of five connectors, the

third from the right is the one you want (it's the long one) which has only six connections of the fifteen in use. The pins you want are No 3 and No 4 (from the right) these are Purple and Green or Orange.

Solder one end of the resistor to pin No 4 and the other end of the resistor to a length of wire about 8" long. Now solder another length of wire to pin No 3 about 9" long, remember to insulate all the connections and joints. Drill a small hole in the upper case of the drive directly above the green pilot lamp, just below the Commodore Logo, and fit the micro switch. Now solder the two loose wires to either side of the switch. Note that all new parts are extra and not in place of the existing wires, the original wires must be left as they were. Reassemble the drive in the reverse order, and test as follows :- use unnotched disc and try to format it in the usual method this should give you an error light, now switch your new switch on/down and try again this should give you a perfect formatted disc. If this test is no good and the system is not working check your connections.

Parts required

1 miniature case mounting microswitch on/off single pole. 1 resistor 3.6k 1/8th watt at 1%. I realise that not all members may live near or be able to obtain the required parts, I will be only to pleased to get them for you and supply a small circuit diagram with details for £1.50 plus 24p postage and package. Send a P.O. for the amount to David Miller (address inside back cover of magazine) Thanks to Joe Quintin for help in this project.

Texas Tales

by Betty Clay

Since the Amiga began, it has been fairly easy for us in the U.S. to keep up with all of the publications dedicated to the machine. There were not very many for the first two years or so - mostly AMIGAWORLD and AMAZING COMPUTING. Later entries were AMIGA SENTRY and the TRANSACTOR FOR THE AMIGA, and then some of the major magazines began putting out Amiga- specific issues a few times a year. Now that sales have passed the one million mark, the publications are proliferating so rapidly that it is difficult to even know all their names. It would take a rather well-heeled Amigan to afford subscriptions to

all of them. Some of the newest are the Amiga magazine from Antic and Compute's AMIGA RESOURCE. ANTIC has been publishing one of the better magazines for Atari for quite some time, and we are hoping for good things from their Amiga version. As might be expected, the Compute's AMIGA RESOURCE will have a regular column from Jim Butterfield. His first set of offerings will explore the CLI, and we are all expecting to learn more about the CLI than we had ever found there before.

Along with the new, though, we sometimes must part with the old. We still have the TRANSACTOR, but my other favourite publication is gone. It was called THE AMIGAN, APPRENTICE AND JOURNEYMAN, and it was truly unique. Most of the material in each issue was written by its editor/publisher, a most unusual man named Dick Barnes. He would spend days researching ways to get the most from a piece of software, and then would write articles describing both his methods and his findings. For example, one early issue had a ten-page article describing the ways to get the best printer output from DPaint. He was especially interested in printed output, and almost every issue gave us hints and instructions for getting our printers to work better. THE AMIGAN was a non-profit venture. Authors were not paid, yet most of us were delighted to see our work printed there. It carried a column on assembly language programming written by Bill Hawes, author of ARexx, Conman, WSHELL, and other outstanding utilities. The column on C programming was written by John Toebes, who is now in charge of the compiler development team at Lattice.

THE AMIGAN is not being lost because of lack of interest, nor from financial failure. The subscriber list was large and growing. The members have been submitting more and more articles that probe the Amiga software and hardware in depth. By all accounts, it is highly successful. It is, however, a one-man show. Without Dick Barnes, there cannot be an AMIGAN, and Dick Barnes is seriously ill, with little hope of significant improvement in his condition. We have suffered a great loss. Our only glimmer of hope is this: Dick is allowed to work two hours a day, and he spends them on his Amiga. He is studying his condition carefully, and considering whether he will be able to write a column for one of the other magazines. Perhaps, if he and his doctor feel that he can manage this, you will have the opportunity to read some of his columns. If such an opportunity comes, don't miss it. It will truly be a treat.

Expansion system for the 500 and 1000

One of the nicer rumours floating about these days is that Commodore will be releasing a hard drive for the 500, capable of holding 2M of memory as well.

[The A590 - see elsewhere this issue - Ed] Since the 500 and 1000 were each built to accept only one addition to the bus, it will be very nice to have these two popular expansion items in one box. An even nicer rumour is that the box built for the 500 will also work on the 1000. When I asked a Commodore rep for more information, he sent this reply: From the answer file, #3297: A pre-release specification has: a) no price, b) no date c) no promises, d) no stable information. There's really no use asking for details unless (by surprise) some is volunteered.

Supposedly a case design that (accidentally) allows transposition of the board to make the bus compliant to the A1000 orientation. Translated that means that you flip the thing and shove it on using a rubber mallet :-) Other than that I don't know, and this is subject to change or may not even work. I was just eavesdropping on a few engineers at Comdex on this one.

All the same, we are told that the box was not designed to work with the 1000, but that when someone tried it, it DID work, just by plugging it in. It would truly be nice for owners of both machines, but especially for the almost-orphaned 1000, to have an easy, workable path to a hard disk and more memory. Keep an eye out for this one.

ARP1.3

The very popular ARP project is still active, though little is being said about its adoption by Commodore these days. The group has been busy bringing all of the commands up to 1.3 compatibility. Currently, several of the 1.2 commands cause considerable trouble. In particular, the MOUNT, RESIDENT, and COPY commands from ARP1.1 should definitely NOT be used with 1.3 software. The makers of ARP are planning to renumber, so that their releases will correspond to the numbering of the operating system with which they work. Version 1.3 of ARP is being beta tested now, and should be released in March. Here are some of the reports that have escaped during the testing periods:

Since COPY had to be reworked anyway, a number of improvements have been made. One very nice addition is the QUICK keyword, which will skip the copy if the destination file is already the 'same' as the source. This can speed up mini-backups a great deal. It has become so useful to the writers that they have decided to make it the default (but this can be changed by the users.) Charlie Heath of Microsmiths, one of the leaders in the ARP project, says that there may be a couple of very minor compatability issues with the 1.3 ARP, but that they are so minor that most people will find the enhancements irresistible. He particularly mentioned that SEARCH will run three times as fast as with the

Commodore 1.3 command, and that PROTECT will work with wildcards. By the time you read this, it is very likely that the new version of ARP will be released,and most of us will probably want to adopt at least some of it. In particular, we need to keep an up-to-date version of the ARP library in our libs: directory, to accommodate those items of freely distributable software that demand it. None of them demand the full set of commands, but many depend on the library for some items, especially the very nice ARP file requester.

AMIEXPO in Germany

The biggest Amiga shows in the United States are those sponsored by the AmiEXPO group, headed by Joe Lowery. These shows are held in New York City, Chicago, and Los Angeles each year. They are probably pretty small shows by your English standards, but they are large and exciting to us. Now we hear that they are coming to you. There will be an AMIEXPO in Cologne, West Germany, at the Cologne Messe Centre on October 27-29, 1989. The show will be sponsored by Markt & Technik, publishers of AmigaMagazin, and with the full cooperation of Commodore, West Germany.

Getting a product to market

And finally:

One of the frequent contributors to the AmigaForum on CompuServe is Andre Fresch, a member of the Commodore sales staff. Andre works out of an office in Atlanta, Georgia, and is in charge of training and supporting Amiga dealers in the south eastern quarter of the United States. This is a tremendously large territory, and it keeps him travelling constantly. Andre is a charming young man, with a quick wit and the ability to make you trust him. If he is typical of the people now being hired by Commodore, we are headed for some much better days here. (And yes, Commodore is hiring many new people. They even had a booth at the World of Commodore show in Philadelphia at which they were signing up potential employees.) Recently, I asked Andre to tell us a bit about the way products are developed and marketed by Commodore. Here are some excerpts from his reply.

First of all, someone needs to think of the product. Ideas come from the engineering department, marketing, customer letters, company advisors, dealers, developers, and many other sources. People within Commodore compile these ideas and make a wish list for the whole world, and then the engineering department does feasibility studies. If the job can be done economically, and if there seems to be a demand (Commodore's Engineering team can ALWAYS do

it, you understand), then a prototype is built. If there is no huge demand when the prototype is done, the product becomes something for OEM (a third party developer). Each country can decide for itself whether it wants to market the new product, and if only one country wants it, it is almost certain to become an OEM product.

If more than one country wants it, development begins and results in sample products. As we continue, the product is refined, and then sent simultaneously to Quality Assurance and FCC (or similar screening processes) and Forecasting (don't ask me what the weather has to do with any of this; it's a marketing thing). There's a loop somewhere in here (as most of you know) of finding bugs/potholes and repairing them. Finally the product is sent to manufacturing for supply purchase, mass production and packaging. The product is then shipped to the countries. It is then up to the countries to dispose of the product as they see fit.

Some of the reasons that countries do not handle products found in other countries: not enough perceived interest, not enough capitalization (remember that CBM/US is less than 20% of sales, and Canada is about as large (or bigger) than us saleswise) and most important not enough support. Could you imagine the horror stories if the A2500UX got into the hands of Billy Bob's Hairdressing, Computer Parlor, and Chainsaw Repair? Like Apple's A/UX, we would get lambasted and (unlike Apple) written off. When you're small, you only get one chance to make a good first impression. For every bad press article we get it takes about 10 good ones to begin to patch the damage. Think about all the good Jerry (Pournelle, in Byte Magazine) has done for us.

But (you wail) how long does each process take? Too long. Here's a breakdown (he sez, as he runs out to the car to get a notebook):

1. Needs -> Engineering -> Feasibility -> Offer to countries (3 - 6 months)
2. Samples developed (6 months - 1 year)
3. Product forecast, FCC/QA -> Build (6 months)

So there it is in a nutshell. Hope it helps explain why it takes such a long time. Bottom line in the US: if it can't be supported or it won't sell a bunch of Amigas, it won't be marketed. You don't market what you can't sell.

AMIGA as an oscilloscope the Datel way?

By David Annal

Datel Electronics produce a hardware/software package that they call a Data Acquisition Unit. This converts your Amiga into a two channel oscilloscope. How good is it and what could it be used for? I took mine round to Len Stuart's test bench to find out. Len is an ex National Physical Lab technician and well versed in these kind of things.

Let me say that even before I got there I was very aware that something was very wrong with my unit. It comes in a good looking metal box enamelled to match the Amiga colour. It also comes with a small transformer which powers it from the mains (another one!). The unit plugs into the parallel port of the computer via a ribbon cable (variations are available for any Amiga type). On the front panel are two BNC sockets, one for each channel, a switch to change input from DC to AC and a red pilot LED. The panel slopes inwards at an angle; at least mine did! It was not until I tried to connect a BNC plug that I realised that the panel should be upright! The plug would not fit. On investigation, ie. removing the lid, I was appalled to find that the panel was a piece of printed circuit board held in place solely by being soldered to the main board along the bottom. The only support from the rear was the two resistors soldered to the back of the BNC sockets! The panel had been bent back in the post and both resistors were broken off! This is inexcusable in such an otherwise well-made metal cased unit. The solution is clear. The plastic blocks holding the lid should have been extended forward to the rear of the panel to support it and all would be well! The whole problem was made worse because the BNC sockets were oversize and it took a great deal of force to get the plugs to mate. (We tried many different plugs and none fitted easily).

After repairs how did we fare? We were impressed by the simulation of the front panel of an oscilloscope with all its buttons and controls. All were accessed simply with the mouse controlled pointer and the functions of each were familiar to anyone who had used an oscilloscope before. We soon had a square wave on the display. A problem was that if the time base was set on a slow scan, the mouse became inoperable until the trace finished. This meant that it became almost impossible to place it accurately over the required button! At faster speeds there was no difficulty. There was about 20% overshoot on a positive rise and 10% on a negative. Cross-talk between channels is fairly obtrusive. The input voltages must be the same on either channel.

The main problem we found was our inability to get the trigger to work under any conditions. This is a major difficulty as a large number of investigations

depend on the triggering facility. We could not therefore stabilise the trace on the screen.

What can we say that's good? The way the screen cursors can be moved to different parts of the trace to measure voltages is very clever. The enhanced mode that joins up all the separate points plotted by the analogue to digital converter and displays them as a continuous trace is nice. Also useful - memory of up to 16 screensful that can be stepped through at will, access to the actual readings taken by the A/D convertor and display of readings in graph form. The 3D plot is interesting. We might find a use for the separate plotter display going up to 10hrs per trace but the start point for channel one can be moved right off the bottom and removes part of the supposed solid casing of the display (not recoverable!).

As you probably gather from the above, we really cannot recommend this unit. The idea is a good one. A 'scope of these specifications could be used for audio work and the investigation of voltages and outputs from analogue devices such as transducers, servo mechanisms and thermocouples, etc. It would not be fast enough to investigate pulse circuits such as those used in computers but would be helpful as a teaching aid using multivibrator circuits, etc. The unit is solid and has a nice feel about it - what a pity that a few crucial matters that could easily have been corrected were apparently overlooked.

Incidentally, Datel were not able to deliver the unit for several weeks but charged my Access card as soon as they got the order. I received the Access statement with the charge on it before I had received the goods. Datel said they always worked this way - a practice specifically frowned upon by the credit card companies.

Brief specification

Bandwidth DC to 1MHz, AC 10Hz to 1mHz +/- 3db. Voltage range 100mV to 10V. 50V max or 500V with 10:1 probe. Timebase 500mS - 2mS per div using Amiga timing ref. plus 1mS - 10 microS using external crystal. Delay timebase 500mS - 10 microS. Adjustable trigger voltage. Display memory adjustable from 1 to 16 screensful. Averaging facility. Graticule illumination on/off. Separate plotter display for slow events adjustable from 1S to 10 hrs per trace.

Manufactured by Datel Electronics Ltd, Govan Rd, Fenton Industrial Estate, Stoke-on-Trent ST4 2RS. Price £89.99.

Discount Corner

by John Bickerstaff, the Discount Officer

Please refer to pages 64 to 67 in the January/February issue for GENERAL INFORMATION - including when you can contact me on the telephone. Do look at the items in this edition. Some facilities have changed even since the previous issue.

CBM Hardware is available to members at discount rates. Call for details.

Amiga Centre of Scotland have announced that they can supply the new 1.3 KickStart ROM's call them for details on 031-557 4242 .

Burocare Graphics Design of 211 Kenton Road, Harrow, Middlesex HA3 0HD have announced their latest available product which is the world's first Graphics Tablet developed especially for the Amiga. It comes in two models, A3 and A4 and has interfaces for the three Amiga's. For more details call Phillip Breindel on 01-907 3636 for more details.

Disc Company have announced new conditions to their offer to ICPUG members for their KindWords 2.0. This revised promotion lasts until the end of April 1989 only. The same general conditions apply - detailed on page 617 in the November/December edition of 1988 - which require you to send to me a cheque. This should be made out to The Disc Company and sent to me together with a cover from another Amiga word processor. Your cheque should be for £35.00 and endorsed on the rear with your current membership number and delivery address. Please send these with your written request and a stamp for 19p to reach me by the 30th April latest.

HB Marketing Ltd have agreed to allow members a discount of 15% on any items ordered from their SOFTSTORE mail order company. This offer applies to orders placed by telephone to Softstore whose telephone number is 0895-441964 - please quote your current membership number and ask for your 15% discount at the time of calling.

H.R.S. Electronics who supply many Commodore parts have moved to :- Garretts Green Lane, Birmingham B33 0UE, telephone 021-789 7575.

Micron Computer Centre Ltd of 73 Kepson Drive, Great Cornard, Sudbury, Suffolk CO10 0YE have agreed to allow members a discount of 15% on both hardware and software. For further details call David Barber on 0787-70176 or Iain Graves on 0293-21116.

NOVA of 4 Octavian House, dashwood Road, Banbury, Oxon, OX16 8HD, will launch their disk based Amiga magazine on APRIL second at £6.00 an issue. They have made an introductorary offer to members of a £1.00 discount for this first issue, which includes a free program disk. Please quote your membership number when ordering directly from NOVA.

Oasis Services Ltd of 17 Andrews Place, London SE9 2SJ are offering members special prices on Starboard2 for the A500 and A2000 Amiga's. They also have for sale SCSI interfaces and other relevant items. Please call Simon Coombes on 01-859 4936 up to 10 pm weekdays on anytime at weekends stating your membership number. Whilst stocks last the prices up to March 20th 1989 are subject to a discount of 5% (and are at a low price level until then). After that date the prices rise and the discount increases to 10%. Call Simon for more details.

Transactor Amiga is available at the new annual subscription for six issues of £18.00 (which is £3.00 each issue) and not £3.50 as shown in last issue of discount corner.

Transworld Publishers regret to advise that they no longer hold stocks of the Commodore C128 Programmers Reference Guide nor the AmigaDOS Manual. The publishers, Bantam, are using another UK company for their future distribution.

Discount pages - COMPUNET GOTO ICPUG - MICRONET *81021324#

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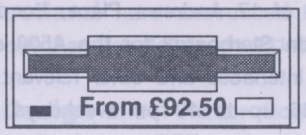

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Access

For Sale and Wanted

Editors note: Copy for small advertisements (no more than six lines please) should be sent to John Bickerstaff (address inside front cover) to arrive no later than the last Saturday of the month before the first month on the cover of the required issue! Yes, this is one week BEFORE the editorial copy date.

WANTED

WANTED: copy of circuit diagram for 1084S Monitor. Brian Kipling., 8 Bolton Road, Franworth, Bolton BL4 7JW. Tel. (0204) 77378.

WANTED: Disk Drive for a PLUS 4 at a reasonable price for a disabled member. Please contact Thomas Barton on 051-724 1112

WANTED: Printer suitable for C64. Must be in good working order. Send details to J.L. Attewell, 51, Spinney Road, Ilkeston, Derbyshire, DE7 4LH

WANTED: Printer (LC10; 120D; etc) and/or wordprocessor for Amiga 500. Contact Keith Lee at 14 Oak Avenue, RAF Marham, Kings Lynn, Norfolk PE33 9LL

WANTED: Manuals for 8250 and/or 4040 disk drives. Contact the Editor (see inside front cover).

FOR SALE

FOR SALE: C128D (1571 drive built in), Datasette, Vizawrite Classic word processor, Oxford Pascal 128 with manuals and other books. Also Quickdisk cartridge for 64 mode, Laser Basic compiler, Laser Genius assembler and many other disks of software including games. Worth over £900 , will sell for £390. Telephone 0869 23462 weekends only to Peter Blair.

FOR SALE: C128, 1541 and 1571 disk drives, Philips Green Screen Monitor, Datasette, 1525 Printer and Xtec Super Graphic Interface. About 20 serious programs including Fontmaster, GEOS, Print Shop and Simon's BASIC. At least 20 Games including Solo Flight, Mission Impossible and Colossus Chess. £495 the lot. Phone Nigel Corry on Medway (0634) 407396.

FOR SALE: MPS 801 printer with Datel 'Printer IV' character chip £75. VIC20 computer with power unit and modulator £20. ARFON 7 slot powered and switched expansion unit with plinth £15. Programmers Aid cartridge £5. Machine Code Monitor cartridge £5. 3K RAM expansion £4. 8K RAM expansion £6. Solidisk VCS2 (3 slot mother board, cartridge simulator with 16K RAM expansion) £7. Various cartridge games £3 each. Also VIC20 cassette

programmes and books. Telephone Roy Thatcher on 01-882 1053.

FOR SALE: C128D (1571 drive built in), 1901 Colour monitor, Modem (latest C'net),Superscript 128, Mini-Office 2, loads of games, Keyboard extension cable, Final Cartridge. Excellent condition & working order £375.00 Telephone 0525 375486 and ask for Nick Pacey - evenings/weekends.

FOR SALE: Commodore green screen monitor + connector for 128 40/80 cols £45. PET 3032 - upgraded to BASIC 4 with Microport 40/80 column conversion and Microport centronics kit £140. 3040 drive with Microport conversation to DOS 2.1 (equiv to 4040) £150 ono. 3022 printer £40. Stack IEEE converter £20 Brainbox IEEE converter, including centronics interface £40. Michael Isaacs, Newbury 0635 43331 evenings, 07356 4100 exth 2701 days.

FOR SALE: Commodore PET 8096, PET 8032, 8050 Disk Drive, IBEK parallel interface, ANADEX DP 9501 printer together with Commodore approved commercial programme for pricing of building and civil engineering work complete with full U.K. data. Also Visicalc 96K. Offers to Peter Fallone 0937-844029.

FOR SALE: MS-DOS 3.30+0 instructions manual - no DOS DISKS. Sharpe PC7200 GW-Basic Manual, no disks. TANDON GW-BASIC Manual, no disks. All these manuals in mint condition. Borland TURBO PASCAL Manual, no disks. ACORN BBC DFS CHIP. Offers required for all or any of these items. CBM 64/VIC20 reset switch £2.00, VIC20 SPINNIKER FACEMAKER CARTRIDGE £3.00, both prices include P & P. Write to: J. Hadlow, c/o Showground, Buchan Park, Greendykes Road, Broxburn, W. Lothian, Scotland.

FOR SALE: PET (80 column) 4032 plus dual disk drive type 4040 and interface for printer (no printer) plus Tandata Tm110 Modem for Prestel etc. All manuals and cables. Software for word processing, database and spreadsheet. Will not split. Demo in Bassington near Royston, Herts. Buyer Collects. £100.00. Peter Allaway on 0763 246118.

FOR SALE: C64 games, old and new, all originals, from 50p each. Send S.A.E. now, before they are all sold, to Kenneth Harvey, 51 Battlefield Road, St. Albans, Herts AL1 4DB.

FOR SALE: New Amiga 500 and Citizen 120-D Printer, T.V. Modulator, the Works - £550. CBM 64, 1702 Monitor, 1541 Disk Drive, MPS 803 Printer, C2N Tape - £425. CBM Plus 4, 1551 Disk Drive (new), C2N Tape, Books, Software - £185. Secondhand Amiga 500, 1084 Monitor, some Software - £500. Tel. 0268 - 44644 eves or 01-853-4646 day Mr. B.M. Collier.

FOR SALE: D128 with SG10C printer, 64 1541 disk drive, modem, datasette, books, easy script, chess etc. All in good condition, £450. Telephone 01-341 3080 or write Bessie Fernandes, 71 Dylan Thomas House, Denmark Road, London N8 0DT.

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Amiga Drives	How to spend your money! RAM / 2nd drive	Bickerstaff	May 256
Amiga Drives	LAN 3.5 external drives reviewed	Bickerstaff	May 309
Amiga Flicker	Info on why it happens & how to minimize	Miles	Mar 196
Amiga Graphics	New graphics chip - monitor problem	Todd	Jul 422
Amiga Graphics	New version of chip have extra-halfbrite	Grainger	Jul 429
Amiga Hard Disk	An easy way to backup your data : Use SB	Fowler	Mar 180
Amiga Interlace	Choosing the right fonts for interlace	Miles	Mar 196
Amiga Library	Comments about a few of the programs	Clay	May 350
Amiga Library	Problems with cheap disks slow turnround	Miles	Mar 212
Amiga Library	Rules for requests with worked examples	Miles	May 356
Amiga Library	The background, the types and the system	Miles	Jan 83
Amiga Memory	Review of Spirit Technology expansion	Mills	May 341
Amiga Pointer	Double pointer occurs with many programs	Todd	Jul 422
Amiga Program 1	A list of books & intro to prog in C	Arnot	Mar 186
Amiga RAM	2 Meg extra memory for A1000 from LAN	Todd	Mar 145
Amiga Screen	Increase max size of useable screen	Miles	Mar 197
Amiga Software	Animators apprentice requires 1.5 Mb.	Graves	May 260
Amiga Virus	Call BYTE BANDIT and ask for an upgrade	Graves	May 276
Amiga Virus	Information & possible capture	Grainger	Jan 21
Amiga Virus	Virus letters and discussions	Miles	Jan 19
Amiga W/B	Newer versions include ASK command	Grainger	Jul 429
Amiga Watch	Death of Amiga & subsequent resurrection	Todd	Mar 140
AmigaBASIC	Little bugs and irritations	Todd	Jul 422
ARexx	Amiga version of REXX for under $50	Clay	May 284
Autoboot	C64 & C128 Automenu program	Tanner	Mar 162
BrainBox	Interface to transfer data between m/cs	Grainger	Jan 3
BrainBox I/F	Price still too high awaiting comments	Graves	May 275
Bugs	Save & replace problem revisited	Bremner	Jan 51
C-64 Library	Six new disks available now	Miller	May 358
C128	A review of BASIC 8	Hooker	Jul 407
C128 Hobby	Running two screens at the same time	Hauke	Mar 177
C64 Library	New catalogue available & 5 new disks	Miller	Mar 220
C64-PC	Transfer files from Pet/C64 to PC -YER	Austin	Jul 462
Charmouth	Diary of a good time at the Queens Armes	Janet B.	May 258
Charmouth	Report on SE w/e break in Dorset	Janet B.	Jan 31

Charmouth	SE group w/e break at Charmouth	Janet B.	Jan 12
Chips cheap	P.V.Tubes supply ICs eg.6510 @ 5.66 + pp	Walker	Mar 226
Comal	COMAL cartridges available - Postronix	Grainger	May 315
Comal	COMAL for the PC from Research Machines	Grainger	May 316
Comal	Commodore COMAL is always wrong !	Grainger	May 315
Comal	Version 2.10 PC COMAL bug.128 CP/M disk	Grainger	Jul 428
Comal Corner	Info on disks 12 & 13 and COMAL news	Grainger	Jan 86
Comal Corner	Some snippets of news & a maths query	Grainger	Mar 211
Comal Disks	COMAL Today issues 14 & 15 disk programs	Grainger	Mar 206
Commodore Mags	A list of mags with reviews on them	Medford	Mar 198
Commodore News	C64 Olympic launch. Staff changes	Janet B.	Jul 371
Commodore Show	Bernoulli removable H/D.B. Clay's visit	Todd	Jul 452
Communications	Beware of virus infection from CCI	Grainger	May 315
Communications	Compunet the electronic colour magazine	Fowler	Jul 455
Communications	Funtel	Y2 Diamond	Jul 428
Communications	How to be utterly confused by Comms	Kennedy	May 300
Communications	Information on Usenet	Clay	Jan 53
Communications	Prestel 100% local charge access	Grainger	May 315
Communications	Prestel raise service rate & charge 1p/m	Grainger	Jul 428
Communications	Telemap now on 0898 premium rate calls	Grainger	May 315
Communications	Three bulletin boards available to ICPUG	Bickerstaff	Jul 387
Compunet	Endterm, a program for accessing BBs	Kennedy	Mar 129
Compunet	Vast improvements in speed etc since '86	Martin	May 337
Computing	Nostalgic thoughts	Grainger	Jan 67
Conference	Developers' conference Washington DC	Clay	Mar 149
CRP Digitiser	A4 version reviewed	Todd	Jul 420
Digi-View	An insight into digitising with DigiView	Read	May 318
Disabled Help	Ian Jones is to assist David Bate (DLO)	Kennedy	Mar 129
Disabled Users	Standardisation is key to special s/w	Jones	May 317
Discount corner	Information reguarding discounts	Bickerstaff	Jan 92
Discounts	10% on all hardware & software A C of S	Bickerstaff	May 362
Discounts	25% off s/w & peripherals -Silosoft Elec	Bickerstaff	May 363
Discounts	A.W.Software - Reported for pirate s/w	Bickerstaff	Jan 95
Discounts	Adamsoft - Abacus, Compute books, etc.	Bickerstaff	Jan 92
Discounts	Amiga Centre of Scotland - various	Bickerstaff	Jan 92
Discounts	Amiga memory expansions etc : Bytes	Bickerstaff	Mar 225
Discounts	Ariadne Software - Kickstart, Genlock	Bickerstaff	Jan 92
Discounts	Bargate - Accountability, Star printers	Bickerstaff	Jan 92
Discounts	Biblios - Programming the C64	Bickerstaff	Jan 93
Discounts	Bitstream - Tim Arnot's book etc.	Bickerstaff	Jan 93

Discounts	Bitstream Publications have moved	Bickerstaff	May 362
Discounts	Brain Boxes - Interfaces & cables	Bickerstaff	Jan 93
Discounts	Bytes & Pieces - various products	Bickerstaff	Jan 93
Discounts	Cassel plc unable to supply COMPUTE book	Bickerstaff	Jan 93
Discounts	Cavendish Commodore Centre - all items	Bickerstaff	Jan 93
Discounts	Compunet - GOTO 326989	Bickerstaff	Jan 95
Discounts	Compunet - modem/subscription packs	Bickerstaff	Jan 93
Discounts	Compunet GOTO 326989-Clubspot 810213204	Bickerstaff	Mar 226
Discounts	Consup Ltd - Disk mailers	Bickerstaff	Jan 93
Discounts	Database Software - Mini office II	Bickerstaff	Jan 94
Discounts	DB Electronic Services - Repair service	Bickerstaff	Jan 94
Discounts	Director, Microfish Filer from Ami Ctr S	Bickerstaff	Mar 225
Discounts	Enigma - publication problems ?	Bickerstaff	Jan 94
Discounts	Hard disks for the Amiga -Bytes & Pieces	Bickerstaff	May 362
Discounts	John Wiley - Books and software	Bickerstaff	Jan 96
Discounts	Lan Computer Services - Amiga & PC	Bickerstaff	Jan 94
Discounts	Load-it - kit reductions	Bickerstaff	Jan 94
Discounts	Load-it available from Mills Associates	Bickerstaff	Mar 225
Discounts	Microtext - Teletext adaptors	Bickerstaff	Jan 94
Discounts	Microtext 10% discount on teletext adapt	Bickerstaff	May 363
Discounts	Perfect Fourth Software - Aural program	Bickerstaff	Jan 94
Discounts	Precision offer up to 50% on software	Bickerstaff	Mar 225
Discounts	Precision Software Ltd - Various offers	Bickerstaff	Jan 94
Discounts	Programmers Guide @ 15% off : Bitstream	Bickerstaff	Mar 225
Disccunts	Sentinel Software - Word Perfect	Bickerstaff	Jan 95
Discounts	Sentinel withdraw 30% offer on Word P.	Bickerstaff	Mar 226
Discounts	Star LC10 serial colour printer -LAN	Bickerstaff	May 363
Discounts	Supersoft - PET 2 plus 4 & 3040 upgrades	Bickerstaff	Jan 95
Discounts	The Queen's Armes Hotel Charmouth - Hols	Bickerstaff	Jan 95
Discounts	Tony Firshman Services - Mains cleaners	Bickerstaff	Jan 94
Discounts	Transactor (UK) Ltd printing 2nd edition	Bickerstaff	May 363
Discounts	Transactor - Published in UK	Bickerstaff	Jan 95
Discounts	Transworld Publishers - 128 & AmigaDos	Bickerstaff	Jan 95
Discounts	Visa Software - The Visa family	Bickerstaff	Jan 95
Discounts	Xerox colour printer driver -Gossamer	Bickerstaff	May 362
Discounts	Y2 Computing - Ruby Comm	Bickerstaff	Jan 96
Discounts	Y2 Computing offer 15% discount	Bickerstaff	Mar 226
Disk Demon 1541	The parallel speed enhancer reviewed	Cottam	May 327
Disks	New disks for old use magnetic eraser	Butterfield	Jul 443
Disks	Problems when using other peoples disks	Miles	Mar 147

DIY desk	How to build an 11ft computer desk	Hauke	May 298
Dpaint	Better printouts from Dpaint & Dpaint 11	Clay	Jan 39
Editors problem	Transferring from 3.5 to 5.25 disk	Graves	May 275
Editors' notebk	Amiga being taken seriously.Competition	Bremner	Jul 370
Editors' notebk	Modem helps get the mag out on time	Bremner	May 238
Editors' notebk	Newsletter relies on 8-bit technology	Bremner	Mar 122
Editors' notebk	Record membership & largest (weight) mag	Bremner	Jan 2
Enigma	Cork Gully appointed liquidators	Bickerstaff	Jul 386
Enigma Magazine	Editor (not ours) makes off with cash	Bremner	Mar 200
Epson Laser	Details of new GQ3500 Epson printer	Wright	Mar 201
Errata	Problems of conversion of quote marks	Bremner	May 349
Exhibitions	11th PCW Show -September 88	Janet B.	Jan 12
Exhibitions	A report on the 11th Commodore Show	Janet B.	Jul 388
Exhibitions	Dates of the forthcoming attractions	Janet B.	May 355
Exhibitions	Info on dates etc of the 1988 shows	Janet B.	Mar 190
Exhibitions	Official Commodore Show -June 88	Janet B.	Jan 12
Exhibitions	Our top floor stand No.89 will be 6x6m	Janet B.	May 239
Exhibitions	Storage space required for stands etc	Kennedy	Mar 126
Fonts	An in depth look at fonts and their use	Kuntz	Jul 372
For sale & wtd	It was there at the time but its gone	Vendors	Mar 232
For sale & wtd	Mostly 64 stuff (a lot of Xmas amigas??)	Yourselves	Jan 98
For sale & wtd	Various & cheap. but 200-250 characters	Populus	May 366
Forth	Info mostly for plus 4 users	Hunt	Mar 213
Forth	The first part of the DIY manual Forth	Hunt	May 330
Forth : Book	80 pages of Forth : not for beginners	Hunt	Mar 178
Forth Library	First forth library disk	Hunt	Jan 79
Free Software	Listing the distinct types of free S/W	Todd	Jul 450
GEOS 128	Compatability between GEOS 64 & GEOS 128	Tilford	May 294
Hackers	Origin & interpretations	Todd	Jan 7
Help Register	Enclosed form to be completed by helpers	Clarke	May 303
History	Help required on ICPUG history	Grainger	Jan 51
History	Potted history of Commodore machines	Griffin	Jan 25
IBM OS/2	Info on the new operating system OS/2	Grainger	Mar 193
ICPUG	AGM arrangements	ED	Jan 47
ICPUG	Financial help to regions	Wise	Jan 23
ICPUG	List of affiliated clubs	Wise	Jan 69
ICPUG	Your chance to see the Commitee @ AGM	Bremner	Mar 146
Index	Setting up (to confuse the editor & me)	Todd	Jan 4
Jim's Jottings	Origins of a house name	Kennedy	May 299
Kernal Calls 1	Commodore incompatability compatable	Cassidy	May 310

Kernal Calls-2	Two routines that accept keybd character	Cassidy	Jul 436
Knitting	Linking your computer to a knitting m/c	Hooker	May 308
Languages	Updates to suppliers of languages	Grainger	Jan 73
Leo Schwab	Story behind The dream goes beserk	Clay	Jan 17
Letters	'Next without for' program query	Bromfield	May 364
Letters	1750 RAM expansion and GEOS incompatable	Hind	May 365
Letters	A501 memory pack problems	Stephens	May 365
Letters	Enigma still available	Merritt	May 364
Letters	Good bad & ugly disks	Burt-Frost	May 365
Letters	Hit any key -Harsh words	Marchant	May 365
Letters	Plus/4 owners should get reduced subs	Baber	May 364
Letters	Query on submission of articles for mag	Austin & Muff	May 365
Letters	Readers letters with the odd tip	Yourselves	Mar 228
Letters	VIC 20 is a fascinating machine	Davies	May 364
Letters	Visawrite Classic v Citizen 120D printer	Richie	Jan 97
Letters	Visawrite Desktop default keymap altered	Reynolds	May 365
Libraries	Guidelines on packaging your disks	Wright	May 354
Libraries	Information on the system and the people	Griffin	Jan 74
List to Epson	List prog file via seq to non-cbm printr	Tanner	Mar 160
Membership	A list of our current membership figures	Cohen	May 239
Membership	Current membership figures	Cohen	Jul 371
Membership	Separate categories impractical	Bickerstaff	Jul 386
Mid-Thames	Report of re-christening lecture meeting	Hatt	Jul 459
Mike's Meander	10 years of ICPUG,program(me),transactor	Todd	Mar 175
Milk race	One of many uses for MPS1000 manual	Kennedy	Mar 125
Network news	Update on recent developments & news	Grainger	Mar 202
New words??	WYSIWYL and a few more like it	Grainger	May 316
Newsletter	Full 1987 newsletter index	Todd	Jan 102
Newsletter	List of helpful hints on writing for us	Bremner	May 304
Newsletter	Writing styles	Todd	Jan 6
Passwords	Suggestions for secure ID's & passwords	Todd	Jan 8
PC	Library	Arnot	Jan 81
PC Library	New disk no. 120 (Mindreader)	Arnot	Jan 81
PC Library	Observe the rules for copies. T.A.moves	Arnot	May 360
PC-XT Bridge	Modifications for non-Commodore drives	Bickerstaff	Jul 387
PCW Show	New venue and renamed the PC Show	Bickerstaff	Jul 387
Penpal Corner	Special Interest Group being set up	Cassidy/Stanton	Jul 456
PET	Identification of machines for upgrade	Griffin	Jan 29
PET	No sign of PET at ex PET Show (Novotel)	Griffin	Jul 437
Pet Prattle - 3	The history of commodore basic	Griffin	Jul 408
PET prattle-2	Printer information with history lesson	Griffin	May 240
Photograph	John Bickerstaff & Peter Miles in camera	Photographer	May 257
Plus 4	Forth library disk	Hunt	Jan 79
Plus 4	Library	Hunt	Jan 80
Plus 4	Plus4orth bug on certain issues	Hunt	Mar 213
Plus 4	Script/Plus bugs	Hunt	Jan 50
Plus 4	Script/Plus bugs,descenders,umlaut,accent	Hunt	Mar 158
Plus 4	Script/Plus printing information	Hauke	May 292
Plus 4	Using interface and Prism Modem 2000	Brunt	Jan 48
Plus 4 library	Disk number eleven release imminent	Hunt	Mar 219
Plus 4 Library	Tenth disk of three seq. files	Hunt	Jan 80
Plus4orth	Erratum - Forth quote delimited text	Hunt	May 336
Poem	The Mexican Hat(t) Dance	Mad Hatter	Jul 430
Precision S/W	American office address	Hauke	Jul 405
Prestel	New co-editor to create new areas	Martin	May 339
Pro. Page	Review of DPT package Professional Page	Hauke/Bremner	Jul 431
Raffle	List of Prize winners at June Show	Janet B.	Jul 390
RAM chips	Results of dynamic Ram chip shortage	Grainger	Mar 194
Regional News	List of areas	Meeting places	Jul 457
Repairs	Good and inexpensive hardware repairs	Holford	Jul 392
Review	Forms in flight	Graves	Jan 58
Review	The pitfalls of reviewing properly	Todd	Jul 451
RS232	Do replacement 128 ROMs still bug RS232?	Kennedy	Mar 125
Script Plus	Precision will supply cartridge cheap	Hauke	Mar 165
Script/Plus	Cartridge based W/P hints on good use	Hunt	Jul 444
Solutions	Replies to the 'next without for' query	Jud/Temple/Kew	Jul 448
South West	First meeting of SW Regional group	Fowler	Jul 461
Spreadsheets 1	History & introduction to spreadsheets	Grainger	May 266
Spreadsheets-2	Continuing the course on spreadsheets	Grainger	Jul 423
Star LC-10C	A review of the C64 serial printer	Hall	Jul 413
STD Index	Place locations for STD codes	Tanner	Jan 57
Stock Market	Share prices pre/post crash & acronyms	Grainger	Mar 195
Super Labels	A complex though straightforward program	Hauke	Jul 399
Super Lib	Is there any interest for 64 or 8000 m/c	Hauke	Jul 399
Super versions	A list of Precision Software versions	Hauke	Jul 404
Super* Corner	Introducing the new author	Hauke	Jan 33
Super* Corner	New library disk Superlib release soon	Hauke	Jul 393
Super* Corner	Perfect example of an enquiry	Hauke	Mar 164
Superbase	An easy way of sorting data on full disk	Todd	Mar 141
Superbase	Auto boot disk & removal of CLI window	Todd	Mar 141

Superbase	Explanation of the BATCH command	Hauke	Mar 171
Superbase	Simple report writer program	Hauke	Mar 170
Superbase	Superbase personal tips	Todd	Jan 16
Superbase	Techniques to improve presentation	Hauke	Jan 34
Superbase	Tips on linking two database files	Todd	Mar 142
Superbase	Ways of entering records in the database	Hauke	Mar 167
Superbase 128	More tips from Australia	Blair	Jul 397
Superbase 64	Superbase Labels program in library	Hauke	May 288
Superbase P.	Some bugs fixed in version 2.03	Todd	May 250
Superbase PE+P.	Keyboard DUPLICATE Command on FISH 73	Todd	May 251
Superbase Pro.	1st steps in setting up Superbase Pro	Hauke	May 289
Superbase Pro.	ICPUG to use Pro. & dongle problems	Kennedy	Mar 128
Superbase Pro.	More help for people using SBpro.	Hauke	Jul 393
Superbase Pro.	Nearly a review :not quite pro manuals	Todd	Mar 143
Superbase Pro.	Program to backup data from hard disk	Fowler	Mar 180
Superbase Pro.	Transferring databases to Superbase Pro.	Hauke	Mar 166
Superbase v3.0	Info on beta-version of Superbase 3.0	Wright	Mar 201
Superletters	Readers superqueries solved	Hauke	Jul 402
Superlink	Tips on integrating Superbase /Script	Hauke	Jan 37
Superscript	A look at the layout commands	Hauke	Mar 172
Superscript	How to produce a directory to sort/edit	Hauke	Mar 174
Superscript	Info on listing with non-cbm printers	Tanner	Mar 160
Superscript	More information in the use of SS	Hauke	Jul 401
Superscript	Naming files & using the macro facility	Hauke	Jan 36
Supertree	A short review if Ezitree on SB64 or 128	Hauke	Jul 400
Supertree	Ezitree for Superbase 64 & 128 genealogy	Hauke	May 291
SuperWord Perf	Program to convert PRG file to SEQ file	Hauke	Jul 403
Survey	Only 0.1% response to review on games	Graves	Mar 123
Technical	Details of technical support service	Clarke	May 302
Teletext	Microtext teletext adaptor reviewed	Knowles	May 312
Texas Tales	Bugs in RSLCLOCK & DMOUSE ?	Clay	Jul 438
Texas Tales	Telecommunications with Usenet	Clay	Jan 53
The Article	The future article may well be perfect	Bremner	Jul 455
Transactor	Quick overview of No.1 issue	Todd	Jan 9
Transactor	Tech/news journal aimed at programmers	Todd	Jan 5
Transputers	New Atari computer for only 3000 pounds	Grainger	Mar 194
Version 1.3	3X faster disk access & more printers	Clay	Mar 148
Version 1.3	Quicker print (20x) & faster disk access	Todd	May 252
VIC 20	C16 etc.	Editor require	Jul 386
Virus	A few more snippets of info on the virus	Todd	Mar 145
Virus	Byte Bandit & SCA virus: use Sectorama	Graves	Mar 130
Virus	More information on virus detectors	Todd	May 249
Virus	More killer disks available	Grainger	Mar 152
Virus	More virus tales of network sabotage	Grainger	Mar 193
Virus	SCA is Swiss not Swedish	Todd	Jul 421
Virus	SCA virus modus operandi & extermination	Broomhall/Park	Mar 131
Virus	Virus infection through your modem	Grainger	May 315
Virus C64	Danish cured german virus	Miller	Mar 135
Virus checker	ViewBoot available as PD software	Meadows	May 347
Vizawrite	A review of the Amiga version Visawrite	Miles	May 322
Which Printer ?	Brief introduction to laser printers	Wright	Mar 136
Word Perfect	Customer support in the US is wonderful	Clay	Jul 440
Word Perfect	Nearly a w/pr -new version more robust ?	Todd	May 252
Word Perfect	Non compatability with Scribble	Grainger	Mar 154
Word Perfect	Problems with DATE command & dictionary	Kennedy	Mar 127
Word Perfect	Version 4 appears to be free of bugs	Todd	Jul 420
Word Perfect	Why not duplicate update disks locally	Kennedy	May 301
Wordprocessors	VisaWrite & Word Perfect comparisons	Kennedy	Mar 126

ICPUG SOFTWARE LIBRARIES

Organiser: Joe Griffin,Clovelly,Lynwick St,Rudgwick,Horsham, Sussex RH12 3DJ

Please remember that the Libraries are operated on an entirely voluntary basis and unlike many of the American User Groups, ICPUG DOES NOT CHARGE A COPYING FEE.

The Libraries contain PUBLIC DOMAIN programs from a wide range of sources, including our own members and other user groups. WE DO NOT SUPPORT SOFTWARE PIRACY.

Members may obtain ALL the library material. In order to retain a measure of control over the work-load imposed on the Copiers, however, we do restrict the amount of material which may be obtained from any one request.

Disk Users may obtain up to two disk copies at a time (Amiga: five).
Tape Users may obtain up to four programs, from any one disk.
(Please use a C-60 or C-90 tape; a C-15 or C-30 may be too short.)

For ALL libraries (except Vic) a catalogue disk is available, containing a list of the library contents. PRINTED CATALOGUES ARE NOT AVAILABLE.

To obtain copies of catalogue or library disks, please send :
A statement of what you want
Your membership number. (Requests without may be returned uncopied)
Disks (STATING format [type of drive] required) or Tape (C-60 or C-90)
We will NOT use a disk as a 'flippy' as it can damage the disk drive.
Pre-addressed re-usable packaging suitable for return
There have been occasions when disks have arrived bent in half!
Please ensure that the packing is adequate.
Return postage - SEND STAMPS.
Overseas members should send International Reply Coupons
(for Surface Mail allow at least one and a half IRC's per disk sent).

PET Joe Griffin (see above)

VIC Tape & 1540/1541 Copies from David Miller (See C-64 library)
8050/8250 format only from Joe Griffin (see above)

COMAL Brian Grainger, 73 Minehead Way, Stevenage, Herts SG1 2HZ

1520 Plotter - W G C Austin, School of Geography, Faculty of Humanities, Newcastle Polytechnic, Lipman Building, Sandyford Road, Newcastle upon Tyne NE1 8ST

1520 (Tape): John Bentley, 38 Conway Road, Taplow, Maidenhead, SL6 0LD

PC Organiser: Tim Arnot, 70 Westway, Botley, Oxfordshire, OX2 9JT
Catalogue from John Robinson, 5 Alba Close, Silica Lodge, Scunthorpe, S. Humberside DN17 2XD. Send your requests to the copier listed below who deals with the Catalogue Category of material you want.

A-D Henry Velleman, 52 Ventnor Drive, Totteridge, London N20 8BS
E-O Peter Crowder, 27 Crawford Drive, Liverpool L15 8AE
P-Z David Harrow, 28 Phoenix Drive, Wateringbury, Maidstone, ME18 5DR

Plus/4 & C-16 - Organiser: Richard Hunt 45 Cumberland Rd, Bromley, BR2 0PL
Send requests to the copier who deals with the first letter of your name.

A-M Richard Hunt (see above)
N-Z Joe Shirras, High View, 69 Ighten Road, Burnley, Lancs. BB12 0HP

C-64 Organiser: David Miller, 38 Exeter Gardens, Ilford, Essex IG1 3LB
Send requests to the copier who deals with the first letter of your name.

A-B Joe Quintin, 7 Cotterhall Ct,Clover Hill, Bowthorpe, Norwich NR5 9AZ
C-F R Burns, 48 Grasmere Road, Royton, Oldham, Lancs OL2 6SR
G-K Norman Wright, 73 Queens Road, Littlestone, New Romney, TN28 8LS
L-O James Mason, 35 Woodburn Drive, Dalkeith, Midlothian EH22 2AZ
P-S M J Mann, 502 Dereham Road, Norwich, Norfolk NR5 8TU
T-Z Peter Crowder - (see PC above)
Overseas & 8050/8250 Joe Griffin - (see above)

128 Organiser: Chris Wright, 37 Cecil St., Lytham, Lancs. FY8 5NN
Send requests to the copier who deals with the first letter of your name.

A-C Bill Gardner, 156 Henwood Rd, Compton, Wolverhampton WV6 8PA
D-J Tom Nuttal, 43 Renshaw Drive, Bury, Lancs BL6 7NJ
K-R Robert Daly, 6 Derwent Crescent, Clitheroe Lancs BB7 2PW
S-Z Dave Tew, 4 Acombe Crescent, Hambrook Pk, Charlton Kings, Cheltenham, Glos GL52 6YH

Overseas (All) Derek Clifford, 36 Hanover Avenue, Feltham, TW13 4JW
1581 requests to Bob Dally (see above)
128 Bulletin Board on 0902-745337 (24 hrs) [Also for PC users]

Amiga - Organiser: Peter Miles, The Queens Armes Hotel, Charmouth, Dorset
Write to him with/about your programs.Disk copies should NOT be requested from the Organiser. Amiga Disk Copiers: [Not more than 5 disks at one time] Specific ICPUG Disks and the catalogue of Read-Me files (ie contents) for these. ALSO for the New Amiga User Set of 5 disks. Send your request to the copier below who deals with the first letter of your surname.

A-D David Annal, 142 Windermere Road, Norbury, London SW16 5HE
E-K Peter Reeve, 2 Court Road, Tunbridge Wells, Kent TN4 8ED
L-R David Flint, 24 Hawthorden Avenue, Uttoxeter, Staffs ST14 7NZ
S-Z Chris Wright (see 128 above)

Public Domain (Non-ICPUG)
- Amicus disks and the catalogue of Read-Me files (ie contents) for these may be obtained solely from:
Ken Turner, 9 Thirlmere Court Keswick Walk, Lancaster, Lancs. LA1 3LQ

- Fish disks and the catalogue of Read-Me files (ie contents) for these.
Please send your request to the copier listed below who deals with the first letter of your surname. (Catalogue now on 2 disks).

A-K Eddie Moore, 4 Gosling Close, Hatton, Warrington, Cheshire WA4 5PB
L-Z John Grove, The Cobnuts,Cobs Close, Ightham, Sevenoaks, TN15 9DB